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PERCEIVED IMPORTANCE AND PERFORMANCE OF COMPETENCIES OF RECREATIONAL SPORT ADMINISTRATORS IN CANADIAN COLLEGES AND UNIVERSITIES

by

Karen Ann Regier

A Thesis
submitted to the
Faculty of Graduate Studies and Research
through the Faculty of Human Kinetics
in Partial Fulfillment of the
requirements for the Degree of
Master of Human Kinetics at
the University of Windsor

Windsor, Ontario, Canada

1988

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ISBN 0-315-48180-3

ABSTRACT

PERCEIVED IMPORTANCE AND PERFORMANCE OF COMPETENCIES OF RECREATIONAL SPORT ADMINISTRATORS IN CANADIAN COLLEGES AND UNIVERSITIES

by

Karen Ann Regier

The main purpose of this study was to analyze the competency perceptions held by recreational sport administrators and their superordinates in Canadian colleges and universities. The study was designed to determine if differences existed among training methods, including years experience on-the-job, prior experience, level of formal education, and specialization. A secondary purpose of the study was to determine the most effective training method for preparing an individual to meet the current demands of an administrative recreational sport position in higher education. A third purpose was the development of a valid psychometric scale which could be employed for both competency importance and performance.

Management competency data was collected by means of a survey instrument, adapted from the *Jamieson RSCA*, and was comprised of 93 task statements describing the typical job of the recreational sport administrator. Respondents were asked to rate each statement on the level of importance and performance with respect to the recreational sport administrator. The total response to the study was 48.7 percent.

Employing principal components with iterations and varimax rotation a set of orthogonal factors with loadings of .55 or higher were extracted for competency importance and perform-

ance. Six dimensions, comprising 30 items, were ultimately selected as a valid measure of competency importance and performance for subsequent analyses. The dimensions include: (1) Procedural, (2) Fiscal, (3) Conceptual, (4) Communication, (5) Health and Safety, and (6) Facility Management.

Competency importance perceptions were analyzed using three-way *MANOVA* designs. The findings indicated that respondents perceived Procedural competencies to be of significantly higher importance for recreational sport administrators with more than 4 years on-the-job experience than recreational sport administrators with less than 4 years on-the-job experience. In addition, Health and Safety competencies were perceived to be significantly more important for recreational sport administrators with undergraduate level education than for recreational sport administrators with graduate level education.

Competency performance perceptions were analyzed in a series of three-way *ANOVA* designs. Performance differences were found in four of six competencies. Based on a Years x Position x Prior interaction, superordinates perceived Procedural competencies to be performed at a significantly higher level for recreational sport administrators with prior administrative experience and more than 4 years on-the-job experience. Respondents perceived Fiscal competencies to be performed at a higher level for recreational sport administrators with prior administrative experience than for recreational sport administrators with no prior administrative experience. Differences in the performance of Conceptual competencies supported the Education x Years interaction. Recreational sport administrators with less than 4 years on-the-job experience and graduate level education were perceived to have performed Conceptual competencies at a higher level than recreational sport administrators with less than 4 years on-the-job experience and undergraduate education. Significant differences were also found in the Communication competencies between superordinates and administrators and within the administrator group based on prior experience. Superordinates of recreational sport administrators with no prior administrative experience and recreational sport administrators with prior administrative experience perceived

Communication competencies were performed at a higher level than recreational sport administrators with no prior administrative experience.

The Quadrant Assessment Model (QAM) was used to classify the dimensions of significantly different groups according to High-Low values of competency importance and performance. While it appears that there is no one best method of training which effectively prepares administrators in all competency dimensions, recreational sport administrators in the position less than 4 years with graduate level education are considered to be effectively meeting the demands of the Conceptual competencies. According to the perceptions of the superordinates, recreational sport administrators with no prior administrative experience are effectively meeting the demands of the Communication competencies. Likewise, the administrators themselves perceive recreational sport administrators with prior administrative experience are effectively meeting the demands of the Communication dimension.

DEDICATION

I would like to dedicate this thesis to the loving memory of my dear grandparents.

ACKNOWLEDGEMENTS

The pursuit of knowledge, challenge, and new experiences have nurtured my desire to travel in many respects, throughout my life. This thesis is but one journey reflecting a multitude of experiences leading to further education. The process involved in making this final product available has been an achievement that would not have been possible without the assistance of many people.

I wish to express my gratitude to Dr. Bob Boucher, thesis advisor, for his professional and scholarly guidance over the past four years. Acknowledgements are also extended to the members of the thesis committee, Dr. Olga Crocker and Dr. Mike Salter, for their time and commitment to this study.

Special appreciation goes to Dr. Alan Metcalfe for enhancing the quality of my graduate experience through the many hours of stimulating conversation. Recognition is also due to Dr. Gord Olafson for his scholarly advice and to Brian Donovan and his colleagues for their valuable assistance in the computer analysis of the data for this study.

The Canadian Intramural Recreation Association deserves acknowledgement for continuing to support advancements within the profession by selecting this study as a worthwhile project for endorsement.

I am most grateful to the colleagues I have had the privilege of working with over the years who inspired my quest for higher learning. To my fellow graduate students, a sincere thank you for sharing your knowledge, resources and sense of humour.

My family deserves special mention in making the completion of this thesis possible and worthwhile. To my parents, Al and Marie, and my brother and sister, Michael and Lynn, thank you for your continued love and support throughout my life's endeavours. Your special words of encouragement helped me find the strength to persevere and the determination to succeed.

Finally, to the friends who have provided their moral support throughout the many phases of this thesis, ... let the party begin!

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Chapter I

INTRODUCTION

Over the past few decades, the sport environment has grown rapidly into a multifaceted network that is concurrently adjusting to a relatively fast-moving social system. Programs have become increasingly complex in response to increased demands, economic pressures, and legal considerations (Williams & Miller, 1983). In addition to the expansion of programs, sport organizations also have undergone substantive changes, requiring a diversity of new skills for the sport administrator. Development within areas of specialization, such as recreational sport, has created greater knowledges than were necessary in former times. Thus, in meeting today's demands, sport enterprises are confronted with challenges of increased accountability and managerial effectiveness, thereby creating a need for capable administrators who can function successfully in sport-related areas.

Despite the need for competent decision-makers, many administrators in the sport environment have been trained for something other than a primary role in sport administration (VanderZwaag, 1978). As a result, many administrators may not appreciate the nature and scope of the job they are assuming. In the specialty area of athletics, administrators traditionally, have only had experience as teachers and coaches working their way up through the ranks (Parkhouse & Ulrich, 1979; Williams & Miller, 1983; Zeigler, Spaeth & Paton, 1969). Likewise, Mullin (1980) suggests that sport management often has been staffed by those who have entered the domain through the player-coach-manager route. According to Livingston (1971), an outstanding record as an individual performer does not predict whether that person is able or willing to get other people to excel at the same tasks. Similarly, Milkovich and Newman (1987) concur that competent skills in one job may be useless in another, providing an invalid indicator of competence. Conse-

quently, a Peter Principle situation develops where many individuals are promoted until they reach their level of incompetence in the organizational hierarchy (Peter & Hull, 1969). Yet, in other sport-related areas, functions are still handled by non-sport professionals. Capable individuals in these positions rely on business training and competencies to the degree that society accepts their performance (Kroll, 1982). Today, specialized knowledge and increased performance expectations render these practices questionable in meeting the demands of the "new" sport administrator.

Mullin (1980) further explains the dilemma of inadequate training.

> It is in the hands of the sport academician to convince the practitioner that the practices of the past are inadequate to meet the demands of the future. The sports manager of the 1980's cannot be merely an athlete turned coach, turned general manager or athletic director. Unless his/her athletic insights are matched by managerial excellence, programs under such leadership are likely to be neither effective or efficient. (pp. 9-10)

In 1974, Sprandel called the need for better training of sport administrators a crisis and recommended that a more accountable and scientific approach be undertaken. For the most part, formal preparation of many sport administrators has existed within physical education curricula. Increasing complexities in the administration of sport, however, have created training needs beyond what most physical education curricula can offer (Beardsley & Mull, 1977). This is especially true within specialist areas such as intramural sport. In response, sport administration, a "relatively new classroom pursuit" (Soucie & Bedecki, 1980, p. 31), has developed to meet this training gap.

The development of the profession has, in effect, preceded the evolution of the academic discipline (Hallett, 1982). In Canada, the development of sport administration programs has been influenced by significant government involvement in sport and the decreased demand for teaching and coaching positions (Paton, 1982). As a result, increased opportunities for individuals with sport administration training have developed within the private and public sectors. The specialty area of recreational sport in the educational environment has received increased attention due to its relatively efficient and effective manner in serving the increased demands of mass par-

ticipation. Thus, sport administration has become successful in providing a viable alternative to traditional careers in physical education.

Despite an attempt to improve the preparation of sport administrators, many individuals still have been inadequately trained to meet today's administrative challenges as reported by discrepancies between academic preparation and job expectations (Sowada & Davis, 1987; Ulrich & Parkhouse, 1982). In general, performance appears to be influenced by the quality of the match between individual ability and job expectations. According to Lofquist and Dawis (1969), other things being equal, the better the match, the higher the expected job performance. Zeigler and Bowie (1983) contend that if the prime objective is to increase the individual's "cope-ability" within the social system, then management competency development provides a more accountable approach for the future.

Management competency is a concept based on the observation of behaviour that shows varying degrees of administrative ability. As described by Bradley (1976), the competency based approach focuses on the acquisition of knowledge and skill, and on the ability of an individual to demonstrate competence in the tasks which comprise a professional role. Therefore, in order to prepare competent sport administrators, the requisite competencies must be first identified. The definition of these competencies is the initial step in the development of a total competency based program of administration. As explained by McCleary (1973):

> No group can claim professional standing without explicit statements about what constitutes competency in that field and the means by which competence can be attained and assessed. (p. 1)

It follows that the training methods by which administrative competence can be attained must also be defined. McCleary (1973) recommends that administrative competence can be attained in a unified program that extends from formal university instruction to on-the-job education in the field.

1.1 Purpose of Study

Many researchers have proposed that management includes a core of competencies that can be applied to any profession (Jackson, 1981; Morgan & Canfield, 1972; Richardson, 1979). If this premise is valid, then individuals with varied backgrounds who receive training in those areas proposed as being common to all management could theoretically manage in the field of sport. VanderZwaag (1984) suggests there is a similarity between successful managers in industry, business, government and sport. To be highly successful, he claims that managers must possess management skills in addition to particular technical skills as the result of specialized training. Jamieson (1982) further stresses that it is important to articulate the specialized skills needed by professionals to deal with the rising demand in sports services. Pope (1982) agrees that it is particularly critical in a relatively new field such as intramural-recreational sport administration. Parkhouse and Ulrich (1979) recommend research efforts that clearly define the parameters for each sport management specialty area. Zeigler (1979a) concludes that unless those elements or competencies that are unique to our profession are identified, the proposition that all management has a common basis must be accepted.

The identification of a set of competencies determined to be important for performance provides a foundation for the investigation of what leads one individual to perform better than another. For years psychologists and others have recognized the existence of individual differences in ability (Tyler, 1965). The fact that ability is related to performance is also generally well-accepted. Similarly, the quality of the match between job expectations and individual ability appears to influence performance (Lofquist & Dawis, 1969). It follows that training, as a measure of ability, should therefore match the requisite competencies of the job. If man is motivated by a sense of competence and a need to be effective, as suggested by Argyris and Schon (1974), ideally then, as job expectations increase, one would expect improvement in training to be sought. However, just as people learn in different ways, various competencies may also be best developed through different means of training, such as formalized course work or one's own personal experi-

ence and background. Based on this premise, differences in training may account for a good or poor match for effective performance.

The quality of the match between training and job competencies also may be, in part, a result of expectation discrepancy due to perceptual judgments by the evaluator. An indication of the utility of the Quadrant Assessment Model (QAM) in identifying discrepancy areas of expectations is provided in the literature. In order to understand the discrepancy, however, it is important to examine the relationship between the perceived importance and performance of the competencies. For example, some individuals may proficiently perform only tasks of low importance while other individuals adequately perform job tasks of high importance. The difficulty arises, however, with the appropriate selection of variables which account for the discrepancies in competent performance. If specific criteria related to what the administrator must know and demonstrate could be identified, training programs could be designed which would permit the preparation of administrators at predictable levels of competence (Kelley, 1975).

The purpose of this study is threefold. The main purpose is to analyze the competency perceptions held by recreational sport administrators and their superordinates in Canadian colleges and universities to determine if differences exist among training methods. A secondary purpose of the study is to determine the most effective training for preparing an individual to meet the current needs of an administrative recreational sport position in higher education. A third purpose is the development of a psychometrically sound scale which could be employed for both competency importance and performance.

1.2 Statement of the Problem

In light of the expansion in the nature and scope of today's sport administrator's job, this study addresses the problem of how an individual becomes adequately prepared to meet the challenges and complexity of the recreational sport administrator role. The main objective of this investigation is to determine whether perceived competency importance and performance are

related to the independent variables pertaining to training. Thus, the following main research question is posed: What is the effect of training on the perceived importance and performance of competencies of recreational sport administrators?

From an examination of relevant literature, certain training variables were identified as repeatedly occurring in the studies. The following hypotheses were formulated on the basis of this literature.

1.3 Sub-Problems and Hypotheses

1. What homogeneous groupings of competencies (dimensions) provide a valid and reliable scale for both competency importance and performance?
2. Do relationships exist among training methods of recreational sport administrators with respect to the perceived ***importance*** of each competency dimension according to superordinates and administrators?

Ho1: There will be no significant difference in the perceived importance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job x *Position* interaction.

Ha1: Groups will differ in the perceived importance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job x *Position* interaction.

Ho2: There will be no significant difference in the perceived importance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job interaction.

Ha2: Groups will differ in the perceived importance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job interaction.

Ho3: There will be no significant difference in the perceived importance of each competency dimension as a result of a *Prior* experience x *Position* interaction.

Ha3: Groups will differ in the perceived importance of each competency dimension as a result of a *Prior* experience x *Position* interaction.

Ho4: There will be no significant difference in the perceived importance of each competency dimension as a result of a *Years* on-the-job x *Position* interaction.

Ha4: Groups will differ in the perceived importance of each competency dimension as a result of a *Years* on-the-job x *Position* interaction.

Ho5: There will be no significant difference in the perceived importance of each competency dimension as a result of *prior* experience.

Ha5: Groups will differ in the perceived importance of each competency dimension as a result of *prior* experience.

Ho6: There will be no significant difference in the perceived importance of each competency dimension as a result of *years* on-the-job.

Ha6: Groups will differ in the perceived importance of each competency dimension as a result of *years* on-the-job.

Ho7: There will be no significant difference in the perceived importance of each competency dimension between recreational sport administrators and superordinates.

Ha7: Recreational sport administrators and superordinates will differ in perceived importance of each competency dimension.

Ho8: There will be no significant difference in the perceived importance of each competency dimension as a result of an *Education* x *Years* on-the-job x *Position* interaction.

Ha8: Groups will differ in the perceived importance of each competency dimension as a result of an *Education* x *Years* on-the-job x *Position* interaction.

Ho9: There will be no significant difference in the perceived importance of each competency dimension as a result of an *Education* x *Years* on-the-job interaction.

Ha9: Groups will differ in the perceived importance of each competency dimension as a result of an *Education* x *Years* on-the-job interaction.

Ho10: There will be no significant difference in the perceived importance of each competency dimension as a result of an *Education* x *Position* interaction.

Ha10: Groups will differ in the perceived importance of each competency dimension as a result of an *Education* x *Position* interaction.

Ho11: There will be no significant difference in the perceived importance of each competency dimension as a result of *education*.

Ha11: Groups will differ in the perceived importance of each competency dimension as a result of *education*.

Ho12: There will be no significant difference in the perceived importance of each competency dimension as a result of a *Specialization* x *Years* on-the-job x *Position* interaction.

Ha12: Groups will differ in the perceived importance of each competency dimension as a result of a *Specialization* x *Years* on-the-job x *Position* interaction.

Ho13: There will be no significant difference in the perceived importance of each competency dimension as a result of a *Specialization* x *Years* on-the-job interaction.

Ha13: Groups will differ in the perceived importance of each competency dimension as a result of a *Specialization* x *Years* on-the-job interaction.

Ho14: There will be no significant difference in the perceived importance of each competency dimension as a result of a *Specialization* x *Position* interaction.

Ha14: Groups will differ in the perceived importance of each competency dimension as a result of a *Specialization* x *Position* interaction.

Ho15: There will be no significant difference in the perceived importance of each competency dimension as a result of *specialization*.

Ha15: Groups will differ in the perceived importance of each competency dimension as a result of *specialization*.

3. Do relationships exist among training methods of recreational sport administrators with respect to the perceived ***performance*** of each competency dimension according to superordinates and administrators?

Ho16: There will be no significant difference in the perceived performance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job x *Position* interaction.

Ha16: Groups will differ in the perceived performance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job x *Position* interaction.

Ho17: There will be no significant difference in the perceived performance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job interaction.

Ha17: Groups will differ in the perceived performance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job interaction.

Ho18: There will be no significant difference in the perceived performance of each competency dimension as a result of a *Prior* experience x *Position* interaction.

Ha18: Groups will differ in the perceived performance of each competency dimension as a result of a *Prior* experience x *Position* interaction.

Ho19: There will be no significant difference in the perceived performance of each competency dimension as a result of a *Years* on-the-job x *Position* interaction.

Ha19: Groups will differ in the perceived performance of each competency dimension as a result of a *Years* on-the-job x *Position* interaction.

Ho20: There will be no significant difference in the perceived performance of each competency dimension as a result of *prior* experience.

Ha20: Groups will differ in the perceived performance of each competency dimension as a result of *prior* experience.

Ho21: There will be no significant difference in the perceived performance of each competency dimension as a result of *years* on-the-job.

Ha21: Groups will differ in the perceived performance of each competency dimension as a result of *years* on-the-job.

Ho22: There will be no significant difference in the perceived performance of each competency dimension between recreational sport administrators and superordinates.

Ha22: Recreational sport administrators and superordinates will differ in perceived performance of each competency dimension.

Ho23: There will be no significant difference in the perceived performance of each competency dimension as a result of an *Education* x *Years* on-the-job x *Position* interaction.

Ha23: Groups will differ in the perceived performance of each competency dimension as a result of an *Education* x *Years* on-the-job x *Position* interaction.

Ho24: There will be no significant difference in the perceived performance of each competency dimension as a result of an *Education* x *Years* on-the-job interaction.

Ha24: Groups will differ in the perceived performance of each competency dimension as a result of an *Education* x *Years* on-the-job interaction.

Ho25: There will be no significant difference in the perceived performance of each competency dimension as a result of an *Education* x *Position* interaction.

Ha25: Groups will differ in the perceived performance of each competency dimension as a result of an *Education* x *Position* interaction.

Ho26: There will be no significant difference in the perceived performance of each competency dimension as a result of *education.*

Ha26: Groups will differ in the perceived performance of each competency dimension as a result of *education.*

Ho27: There will be no significant difference in the perceived performance of each competency dimension as a result of a *Specialization* x *Years* on-the-job x *Position* interaction.

Ha27: Groups will differ in the perceived performance of each competency dimension as a result of a *Specialization* x *Years* on-the-job x *Position* interaction.

Ho28: There will be no significant difference in the perceived performance of each competency dimension as a result of a *Specialization* x *Years* on-the-job interaction.

Ha28: Groups will differ in the perceived performance of each competency dimension as a result of a *Specialization* x *Years* on-the-job interaction.

Ho29: There will be no significant difference in the perceived performance of each competency dimension as a result of a *Specialization* x *Position* interaction.

Ha29: Groups will differ in the perceived performance of each competency dimension as a result of a *Specialization* x *Position* interaction.

Ho30: There will be no significant difference in the perceived performance of each competency dimension as a result of *specialization.*

Ha30: Groups will differ in the perceived performance of each competency dimension as a result of *specialization*.

4. For each significantly different group, how are the validated competency dimensions classified into the QAM:

   i) highly important and being performed according to this importance.

   ii) highly important but not being performed according to this importance.

   iii) not important and not being performed better than this importance.

   iv) not important but being performed better than this importance.

5. Based on comparisons of the analysis of variance and QAM findings, what training is effective in meeting the current needs of the profession, as identified by Quadrant 1 (highly important and highly performed)?

1.4 Need and Significance

The nature and scope of administration penetrates every phase of an organization. Consequently, administrative behaviour has the potential to support and enhance or disrupt and confuse any or all parts of an organization (McCleary & Hencley, 1965). The importance of managerial effectiveness or competency, therefore, requires that attention be given to the training of administrators. According to Drucker (1971), the effective manager has to be a competent practitioner.

In the last few decades, the functions of an administrator have undergone substantive changes (Scott, 1979). Despite the growth which has occurred within the field of recreational sport, little research exists which focuses attention on the administrator of this specialized area, underscoring the need to re-evaluate and update the knowledge and training available for this "new" sport administrator. Current research indicates a growing dissatisfaction among employers due to the discrepancy between academic emphasis within sport preparation programs and job expectations (Sowada & Davis, 1987; Ulrich & Parkhouse, 1982). Consequently, it is important to investigate the match between individual ability and job expectations.

One personnel problem which is apt to face organizations, according to Rutigliano (1987), concerns implementing cost-effective training in meeting employee career development needs. Miller (1983) states that due to today's competitive job market and increased accountability, aspiring administrators require top level training and relevant course work in the shortest time possible. In order to move in this direction of efficiency, competence, and self-improvement, educators, employers and administrators need to know the training methods which are effective in preparing competent administrators. Kelley (1975) claims the existing state of knowledge about effective predictors of administrator competence is weak if not non-existent. Therefore, it seems appropriate to identify competencies that are important for performance by recreational sport administrators, and then to determine the training methods (educational and experience) effectively preparing competent administrators.

Sport administration, with its specialty areas, is an emerging field which requires a knowledge base from which personnel may function, as well as contribute to the growth of this knowledge base. The development of competencies adds to this body of knowledge, creating a foundation for education, training, and self-regulation of the profession (Jamieson, 1987). According to Kroll (1982), if society decides that sport can be:

> conducted satisfactorily by skilled technicians or by unskilled citizens on their own, then the reason for the existence of a profession charged with such a responsibility is negated. (p. 87)

Likewise, if effective training is not developed for the recreational sport specialist, the concept that anyone is capable of practicing this occupation will be reinforced (Pope, 1982).

The development and credibility of the field depends in part, upon the ability of well-prepared administrators to meet the expectations of the profession. To ensure competent recreational sport administrators will be available to manage the new demands of the sport environment, efficient and effective training must be determined based upon reliable and valid research. Institutions of higher education have a responsibility to ensure the most scientifically based training possible is available to prepare future administrators (Miller, 1983). As a result, appropriate

standards may evolve to support the knowledge base and protect the profession from being lost to those without expertise in sport administration.

Many disciplines, including sport administration, have conducted research into the investigation of important competencies, primarily for the purpose of developing curricula. Some of these studies have addressed the competencies relating to managerial levels. Educational research has advanced one step beyond the identification of competencies by examining the relationship between the importance and performance of these competencies in an attempt to understand potential discrepancies in performance (Sanders, 1980; Thiessen, 1981). In business research, studies have attempted to explain performance as a result of ability using measures such as level of education, on-the-job experience (Schuler, 1977), and in-service training programs (Buchanan, 1957). In the area of sport administration, most studies investigating performance have used descriptive statistics to prescribe variables or characteristics desirable for successful performance (Sutton, 1975; Williams & Miller, 1983).

Although numerous competency studies have been reported in the literature, little or no research exists, particularly in recreational sport administration, which attempts to analyze the discrepancies of importance and performance based on a particular combination of training measures. These concepts make this study unique in comparison with other efforts. Hence, this study was designed to build upon the work of Jamieson (1980) and contribute to other existing administration literature concerning competencies, training and performance. It was also intended to provide insights into the directions that future research might take.

A list of the implications of such an investigation include:

1. Furthering identification of competencies as a prerequisite to aid in certification of professionals.

2. Providing empirically supported information for planning competency based training programs aimed at preparing individuals for existing sport management roles, specifically in intramural recreational sport.

3. Furnishing information from which it will be possible to assess whether preparation as a generalist is sufficient for administering recreational sport programs in the educational setting; a question that has not been answered empirically to date.

4. Providing information which could assist employers in formulating criteria for hiring and evaluating prospective recreational sport administrators, as well as, recommending future training for current administrators.

1.5 Assumptions

1. The first assumption of this study is that the range of competencies generated from a previous field-test and modified from the investigator's own pilot-test was comprehensive and representative of recreational sport administrators.
2. For purposes of statistical analysis, the Likert measurement scales used in this study were assumed to meet the criteria of interval-level scales.
3. Due to the lack of uniformity regarding recreational sport job titles and departmental structures in Canadian colleges and universities, as indicated in the Canadian Intramural Recreation Association (CIRA) Post-Secondary Survey (1984), it was assumed that the questionnaire was completed by the most appropriate recreational sport administrator.
4. Since an identifiable list of superordinates was not available the investigator relied upon the cooperation of the recreational sport administrator to forward the designated survey to his/her immediate supervisor.

1.6 Limitations

The following limitations of the study were acknowledged:

1. Due to the geographical spread of the participants, a mailed questionnaire was used to collect the data. The response rate to mailed questionnaires has been documented as generally being low. Travers (1964) states that a questionnaire of some interest to the recipient may be expected to show a 20 percent return. At best, the investigator may expect a return as high as 50 or 60 percent (Kerlinger, 1986). These comments regarding the rate of response to questionnaires indicate that the central difficulty in the use of such an instrument was the low rate of return. As a result of low returns, valid generalizations cannot be made (Warwick & Lininger, 1975).

2. Administrative behaviour and reaction to administrative behaviour are based upon the perceptual judgments of the persons responding (Enns, 1966). Perceptions are usually highly subjective versions of reality. To overcome any biases which may have existed, the perceptions of the superordinate and the self-perceptions of the recreational sport administrator were included.
3. As Sanders (1980) explains, information generated in the QAM is relative and not absolute. This differentiation is necessary for correct interpretation, particularly for "borderline" items. For example, statements identified in low importance quadrants (Q3 & Q4), should not be perceived as being unimportant but rather as being of lower importance than statements placed in high importance quadrants. Likewise, from the placement of statements in low performance quadrants (Q2 & Q3), one cannot conclude that these statements are not being performed well in an absolute sense, but rather that they are not being performed as well as those identified in high performance quadrants.

1.7 Delimitations of the Study

The researcher has chosen the following restrictions:

1. The study was restricted to recreational sport administrators who were chiefly responsible for the recreational sports programs in the given institution (whose duties were reflected in intramural areas for the most part) and their superordinates in English-speaking Canadian colleges and universities.
2. Kelley (1975) states that "competence in any meaningful sense can be ascribed only when there is an accumulation of evidence, over time, that an individual is able to apply knowledge and perform certain functions or skills in ways which are, more often than not, perceived positively by both the individual and his audiences" (p. 3). Therefore, it was deemed important that the recreational sport administrator must have been employed full-time in the current position for at least one academic year (eight months).

3. Likewise, the superordinate must have been the immediate supervisor to the current recreational sport administrator for at least the previous academic year (eight months).
4. The population was restricted to English-speaking institutions since the questionnaire was only available in English.
5. The study was delimited to the selection of three independent variables representing training methods (formal education, specialization, prior experience) of recreational sport administrators, controlled by two extraneous variables (on-the-job experience, respondent group).
6. The study was also restricted to the time frame set for collecting responses (June through August).

1.8 Definition of Terms

Since the key terms throughout this study are subject to wide interpretation, the following definitions (and/or explanations) were used in the written text of this study. Despite the argument of some researchers (Price, 1971), no significant definitional differences are made between the terms "administration" and "management" (Mullin, 1980). Therefore, in this study the terms are considered synonymous and used interchangeably.

Academic Preparation: the highest achieved level of formal education, as well as the area of specialization.

Colleges: post-secondary educational institutions including community, regional, and technical institutes in Canada.

Competency: is a composite skill or combination of skills that best define a core of interrelated actions (Jamieson, 1987) which indicate the knowledge, ability, or other identifiable characteristics needed to perform the task or role, including technical, conceptual, and human knowledge skills (McCleary, 1973).

Competent: "to be competent is to possess sufficient knowledge and ability to meet specified requirements in the sense of being able, adequate, suitable, or capable" (McCleary, 1973, p. 2).

Current Needs: those competencies/dimensions perceived of high importance in accordance with Quadrant Assessment Model classification.

Education: the highest achieved level of formal education.

Effectiveness: "producing a desired outcome as a result of competence" (Thiessen, 1981, p. 18).

Intramural Sports: structured, competitive leagues and tournaments within the confines of the institution.

Management: "is a social and technical process that utilizes resources, influences human action and facilitates changes in order to accomplish an organization's goals" (Haiman & Scott, 1974, p. 6).

Physical Activity: encompasses the study of sport or physical education or kinesiology or recreation.

Profile: "is a set of different measures of an individual or group, each of which is expressed in the same unit of measure" (Kerlinger, 1986, p. 137). For purposes of this study, there is an Importance and Performance profile.

Quadrant Assessment Model (QAM): a discrepancy analysis technique used for the placement of items into high-low categories of importance and performance (McCleary & Pol, 1973).

Recreational Sports: consist of intramurals, leisure activities, clubs, and non-credit instruction.

Recreational Sport Administrator: refers to the most senior position responsible for "planning, organizing, staffing, directing and controlling to be performed within the context of an organization whose primary or predominant product or service is sport or sport related in that such activity is play-like in nature" (Mullin, 1980, p. 3), physical and based on the need and interest of the participants.

Superordinate: the individual in the line of authority to whom the recreational sport administrator reports directly; immediate supervisor.

Training: for the purposes of this study, a learning experience encompassing formal education, specialization, prior relevant experience, and on-the-job experience of the recreational sport administrator.

Universities: post-secondary degree granting educational institutions in Canada.

1.9 Overview of Thesis

The background of the problem, purpose of the study, and statement of the problem, as well as the need and significance are introduced in Chapter I. The assumptions, limitations and delimitations are also stated. In addition, this chapter provides the definition of terms used in the study.

The theoretical background providing the foundation for the design of this study is outlined in Chapter II, and is followed by a review of related literature concerning competencies, training

and performance. In Chapter III, the population, pilot study, instrument, and statistical methods employed in the investigation are described. Subsequent findings followed by the discussion of results are presented in Chapters IV and V, respectively. The summary of the study, conclusions, and recommendations for further research are presented in the final chapter - Chapter VI.

Chapter II

THEORETICAL BACKGROUND AND REVIEW OF LITERATURE

The purpose of this chapter is to present a theoretical framework and review of related literature. The chapter is organized into two major sections. The first section introduces the theoretical concepts necessary to understand management competency as an approach to management development. In addition, the Quadrant Assessment Model (QAM), a methodology used in the assessment of competency, and the theoretical models used in the design of this study are also presented. The second section reviews the relevant research concerning the variables defined in the problem.

2.1 Theoretical Background

The concept of competence implies that the basis for much of human behaviour is the need to be effective in controlling one's environment (Petri, 1986). Many researchers have noted the persistent motive within individuals to become competent in dealing with the environment. White (1959) suggests that this motive for competence exits within each of us. Accordingly, Argyris and Schon (1974) propose this inner drive to master oneself and the environment is a way that makes organizations effective. As a means of assessing the motive of competence in meeting organizational effectiveness, measures of performance are conducted.

The purpose underlying performance evaluations and ultimately the assessment of competency has been outlined by Pol (1976, p. 1). In his view evaluations should be performed to gather information based on the required competence that allows a person to: (a) perform the tasks of a specific position, (b) determine the correspondence between performance behaviour and job expectations in order to identify the crucial areas and competencies that appear not to be poss-

essed by the incumbent, (c) provide opportunities for role clarification and role definition, and (d) provide feedback for the design of training programs that improve competence. According to Schuler (1981), the ultimate goal of such a process is to improve employee effectiveness or competence so that "the employee, the organization, and society all benefit" in the future (p. 221).

2.1.1 Approaches to Management Development

The prediction of administrative success or competence has been rooted in three concepts of training as described by Kelley (1975). The classical academic approach to administrative training is based on the assumption that cognitive knowledge is the best predictor of future success. Alternatively, the performance based approach to administrative training is based upon the specification of skills or behaviours essential to administrative effectiveness which must be demonstrated. The inherent weakness with the academic approach lies in the eclectic and individualistic nature and quality of academic programs. The problem with the performance based approach rests with lack of agreement on the specific skills which should be demonstrated to permit valid comparisons. Kelley describes these approaches as process-oriented in that their focal objective is the demonstration of knowledge or skills. In comparison, the competency based approach is concerned with job outcomes or results attained in the application of knowledge, skills or behaviour.

2.1.2 The Competency Approach

McCleary (1973) approaches administration from a perspective of competency. He defines competency as "the presence of characteristics or absence of disabilities which render a person fit or qualified, to perform a specific task or role" (p. 2). According to McCleary, the basis of assessment of an individual's competency attainment is his performance. Before management competency analysis can be determined, however, two critical elements concerning a definition of the job itself and the referent groups involved in judging whether or not an individual is competent must be considered (Kelley, 1975; McCleary, 1973; Pol, 1976).

A variety of referent groups can be called upon to make judgements about the competence of individuals. One of the problems associated with the measurement of performance, according to Boyatzis (1982), is that it is based upon an individual's perception of an appropriate goal or standard. As a result, there is no guarantee that a person judged competent at one point in time or within one setting will also be judged competent at a differing point in time or in a different setting. Perceptual judgements about competence are relative to the standards of the specific setting and the standards accepted and used by the referent groups involved in the assessment of competence (Kelley, 1975). Since individuals in related roles determine the definition of the role, it follows that these referent groups should be involved in the assessment (Sanders, 1980). The use of a single audience for assessment and evaluation of competence is common according to Kelley (1975). However, he suggests multiple measures permit greater accuracy in the assessment of values for determining competence.

The composition of an administrative job has been viewed from a number of perspectives. "These perspectives have viewed administration as areas of responsibility, processes, skills, role expectations, competencies, and analytic descriptions of behavior" (Sanders, 1980, p. 10). Each approach contributes to the understanding of the function of the administrator in order that a basis may be established from which job performance may defined, measured, and predicted.

One approach to the conceptualization of administration which frequently appears in the literature is that provided by Katz (1974). He identifies the three basic skills for effective administration as technical, human and conceptual skills. In addition to these three categories, Zeigler and Bowie (1983) use conjoined and personal skills. Spaeth (Zeigler & Spaeth, 1975, pp. 12-13), alternatively, views administration as a process encompassing three distinct areas: the General Administrative Processes, including decision-making and communication; the Specific Administrative Processes, including planning, evaluating, and activating and; the Technical Administrative Concerns, including facilities and equipment, personnel administration, supervision, program development, public relations, and finance and business management. Fleishman (1975) and his

associates categorize the job according to ability factors required for task performance. Sanders (1980) summarizes these views by claiming that indicators of performance should reflect abilities, skills, and expectations. In order to accomplish this purpose, task statements have been used as criterion measures of performance.

With regard to the competency approach, Graff and Street (1956) suggest that the requisite competencies of any job can be systematically determined and described. They explain that competency represents behaviour of a desired quality which may be observed. Subsequently, it is the observed behaviour or performance which makes it possible to analyze a job into its component expectations to discover the specific tasks which, in turn, make it possible to determine the requisite competencies of the job (Graff & Street, 1956; McClelland, 1973).

The data collected in the job analysis represents the underlying abilities which must be translated into training objectives for the purpose of management development and competency attainment. One of the problems in organizational research, however, involves the measurement of ability due to the large number of dimensions underlying the construct (Boucher, McMillan & West, 1980). Researchers have used a number of variables ranging from intelligence/aptitude tests (Kaufman, 1972; McClelland, 1973) to years of formal education and years of relevant work experience (Schuler, 1977) as measures of ability.

There have been two different approaches taken in using measures of ability to determine the success or competence of administrators. With respect to the first alternative, existing administrators are surveyed regarding the value and importance of formal education and other related training experiences. The second alternative compares and contrasts the end results of training. The first approach has been the main focus of several studies in assessing not only the value of various curricula, but also other prescribed variables for training. McCleary (1973, p. 9) suggests that responsibility for competency development can be assigned to "formal course work, some to reality oriented experiences, some to integrative experiences, and some to culminating experiences." Livingston (1971) believes the usefulness of formal education programs is often over-

rated in preparing administrators due to an emphasis on problem solving and decision making, referred to as "respondent behavior". He suggests that success comes from "operant behavior", that which can only be developed on the job.

The second approach, comparing and contrasting the end results of training has not received much attention in the sport administration literature to date. This procedure involves longitudinal or experimental designs in the case of the preparation of administrators and consists of measuring the success of the administrator at a point in time after the completion of the training. Miller (1983) suggests that criteria established to identify the successful administrator may be confounded by such variables as previous administrative experience, geographic location, size of the department, school, or institution and the previous and existing circumstances surrounding the administrative routine. According to Kelley (1975), the data which would provide a solid base for linking standards for learner performance while in a preparation program to subsequent competence as demonstrated on-the-job is non-existent or inadequate. He cautions that the task of linking multiple variables to explain the demonstration of competence may be so complex that it is not feasible.

In determining competence, Pol (1976) suggests it consists of subparts or competencies which, "when put in actual practice at a high level of proficiency, make a competent person" (p. 1). Competency in one area can compensate for deficiencies in others, according to Nickse and McClure (1981), creating a variety of combinations of individual performance levels which could theoretically "add up to" adequate overall performance. The following statement by Graff and Street (1956), however, summarizes the significance of examining the discrepancy between the importance and performance of competencies, as identified by the Quadrant Assessment Model (QAM). "No amount of competence in the minor tasks will produce successful job results if the critical tasks are incompetently dealt with" (p. 90).

2.1.3 Quadrant Assessment Model (QAM)

The QAM is a needs assessment methodology developed by McCleary and Pol (1973) at the University of Utah and is used in assessing areas of competence. A needs assessment, as defined by Kaufman and English (1979), is the formal collection and listing of needs, placing the needs in priority, and selecting the needs of highest priority for action. Subsequently, need is defined as the gap between what happens in reality and what ideally should occur. The model involves a systematic process which compares *ideal* and *real* profiles. In the ideal form, the scale is related to the *degree of importance* and in the real form, the scale is related to the *level of performance.*

The evaluation requires information that enables individuals to identify the crucial areas of competency that are necessary for an administrator to adequately perform the job, as well as areas of need indicated by discrepancy between importance and performance (Pol, 1976). Participants are requested to react to a list of descriptive statements that purport to describe the position under investigation. The participants provide both a measure of the importance of each statement (ideal expectation) and a measure of current ability to perform (real outcome) for each task description. Other researchers (Pol, 1976; Sanders, 1980) have used this needs assessment process and have also validated it as to the accuracy of the information which it generated.

Employing the high-low scale for both the *ideal* and *real* profiles, the data is organized in the manner depicted in Figure 1, formulating four categories. Once the statements are organized into the categories, they are placed into one of four corresponding quadrants, as illustrated in Figure 2. Quadrant 1 includes those statements with high scores in both the *ideal* and *real* dimensions. Quadrant 2 includes statements with high *ideal* scores, but low *real* scores. Quadrant 3 includes those statements with low *ideal* and *real* scores. Quadrant 4 includes statements with low *ideal* scores, but high *real* scores.

Competency/needs assessment information can be extracted by interpreting the quadrants as follows:

High Ideal - High Real Quadrant (Q1): competencies classified in this quadrant are perceived as relatively important and should be given high priority in training. Also, these competencies are perceived as being practiced at a satisfactory level of performance. It follows that

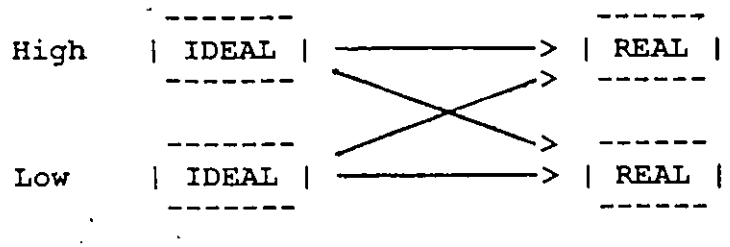

Figure 1: Diagram Representing the Relationships of Profiles in the Quadrant Assessment Model (modified: Sutton, 1975)

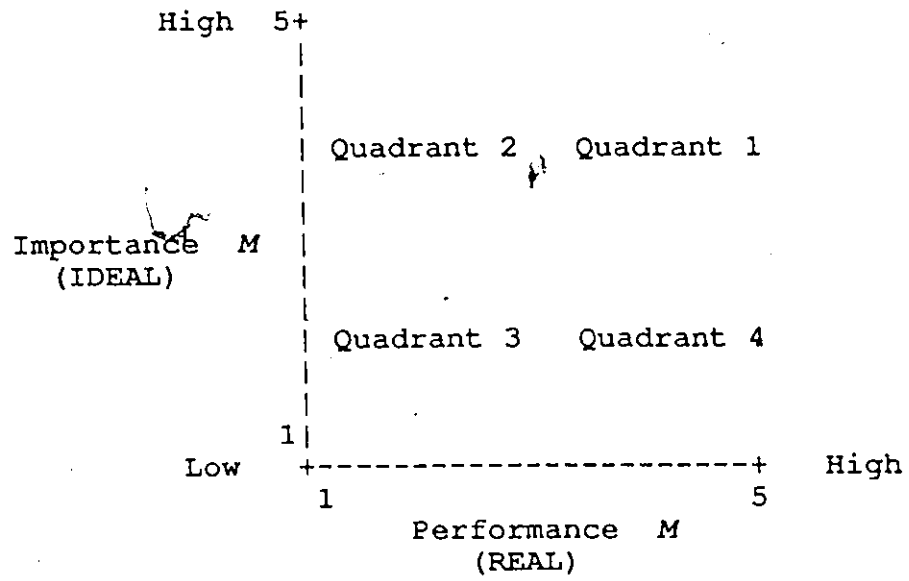

Figure 2: Diagram Representing the Four Quadrants of the Quadrant Assessment Model (modified: Sanders, 1980)

administrators in the field may find the competencies in this quadrant helpful in the development of a more clear definition of their roles. Superordinates may find these competencies worthwhile as indicators of performance for recreational sport administrators or as hiring guidelines.

High Ideal - Low Real Quadrant (Q2): this quadrant is referred to as the "needs quadrant" because it contains competencies that are relatively important, but that are perceived as inadequately performed. Further training is most needed in these areas.

Low Ideal - Low Real Quadrant (Q3): statements in this quadrant indicate that the competencies are of relatively little importance and are not over-emphasized in actual practice. This is not to conclude that they are not necessary competencies for the administrator to perform, but that considering their low priority in the range of tasks, they are thus receiving the time and effort that they demand.

Low Ideal - High Real Quadrant (Q4): statements in this quadrant indicate that the competencies are of relatively low importance. However, they are perceived as being over-emphasized in practice. Competencies placed in this quadrant should be examined carefully to determine whether or not valuable time misspent should be redirected to emphasize other tasks. Otherwise, a redefinition of the role may be in order. (Sanders, 1980)

2.1.4 Theoretical Models

Sport administration, as described by Mullin (1984), is a hybrid field having its roots in the major disciplines of physical education and management. In addition, the recreational sport profession has developed an identity related to both physical education and recreation (Jamieson, 1980). As depicted in Figure 3, this relationship of disciplines provides the foundation for the hypotheses design of this study. The discipline of physical education, however, has been expanded to encompass the broad spectrum of physical activity.

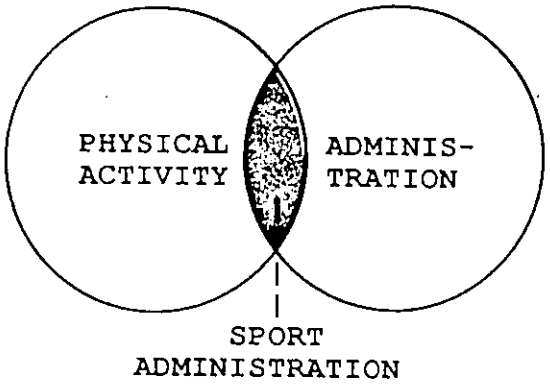

Figure 3: Foundations of Training

Effective performance or competency of a job may be assessed by the attainment of specific objectives or job expectations (Boyatzis, 1982). In order for a person to demonstrate the specific outcomes, abilities must first be nurtured through some means of training. Basic to this notion is

the persistent motive within individuals to test and expand their abilities (Petri, 1986). Furthermore, McClelland (1973) notes that it is difficult to find a human characteristic that cannot be modified by training. Thus, as abilities specific to job expectations increase, so does the area of competency increase. This concept, illustrated in Figure 4, depicts circle A (individual abilities) and circle B (job expectations) before competencies specific to the job are fully developed. Through training, competencies specific to job expectations are developed and aligned according to priority, creating a better match. As a result, the area of overlap between circle A and circle B is increased, indicating an increase in the area of competency attainment.

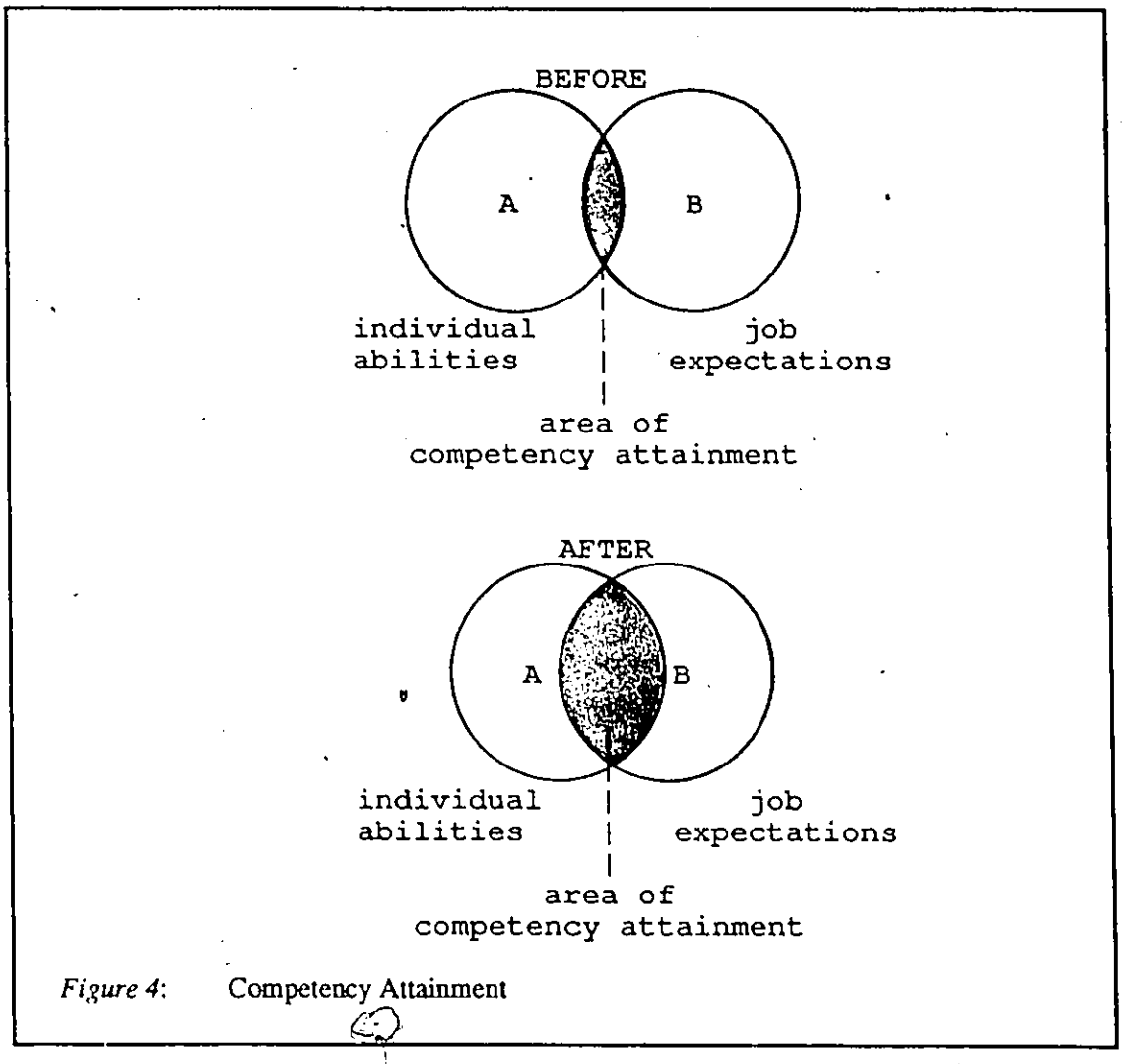

Figure 4: Competency Attainment

In view of the preceding foundations, the thrust of this study is based on the theory that individuals possessing skills and knowledge through training have increased abilities to perform over less skilled individuals (Vroom, 1960). Research in psychology and physiology indicate that individuals having strong abilities can improve their performance through practice and training (Katz, 1974). According to Boyatzis (1982), competencies are causally related to effective and/or superior performance in a job. A summary of the process necessary for competency assessment is incorporated into the following model (illustrated in Figure 5): (a) job analysis, (b) translation of job expectations into training objectives, (c) analysis of job expectations (performance and importance) in order to determine competency, and (d) identification of areas of need in order that skills, knowledge, and behaviour may be identified for improvement. Requisite competencies also, are in turn, translated into training objectives. Based on this process of delineating job expectations or requisite competencies and integrating them into training objectives, theory is linked with practice (Jamieson, 1987).

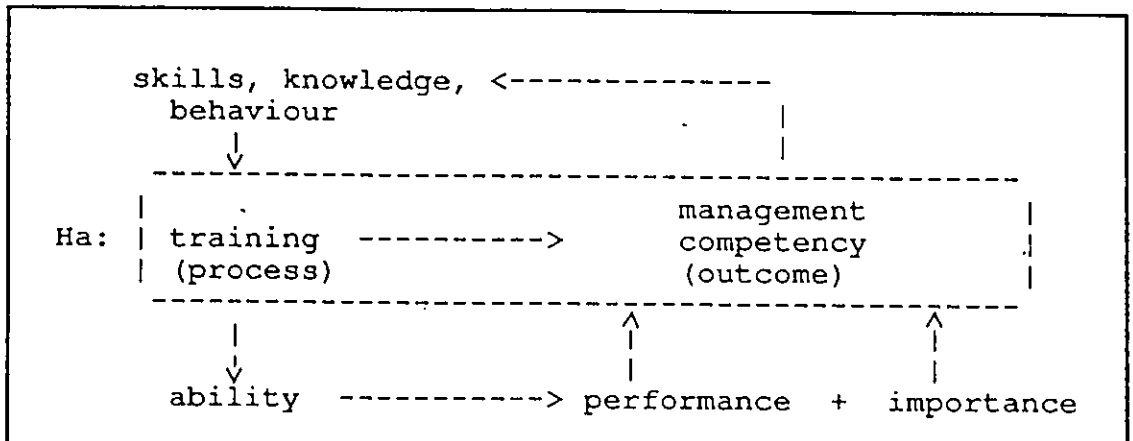

Figure 5: Theoretical Model

2.2 Review of Literature

A significant factor in reviewing material for this study was the lack of literature investigating the area of sport management. Traditionally, an academic discipline leads to the development of the profession (Parkhouse & Ulrich, 1979). In the case of sport management, the demand for graduates precipitated the theoretical development of an academically tested discipline. This is in part due to the fact that the first sport management program was established only twenty years ago at Ohio University (Mullin, 1980). Within the past decade, however, the emphasis on research in sport management has developed due to the growth of graduate study programs.

Historically, research efforts in the field have focused on the roles of physical education teachers, coaches, and physical education and athletic administrators. According to Parkhouse, Ulrich, and Soucie (1982) in their review of related administrative dissertation topics (1950-1980), job and task analysis of administrators in the field and surveys of the qualifications of these heads and directors constituted the third largest area of investigation. Surveys of programs and curricula in physical education and athletics were also a popular area of investigation. Few studies, however, have analyzed the administrator's task in terms of empirically testing what managerial competencies and training best meet the needs of an administrative position.

According to Davis and Widner (1987), recreation, sport, and intramural management have many crosslinkages and commonalities. They note all three areas share common terminology, program structures, curricular offerings and theoretical foundations. As a result, many of the insights provided in one area of research are applicable across other areas. An investigation into the related literature pertaining to competency and training of physical education/athletic/sport administrators is, therefore, warranted.

2.2.1 Job Analysis

A majority of investigations have been associated with "job analysis" of the administrator. One of the purposes of these job analysis investigations was to analyze the job according to the duties, responsibilities, skills, or competencies perceived important for successfully performing the job. Basic to this purpose, however, was the determination of the underlying variables influencing the perception of "importance".

In the 1950's several doctoral studies investigated the topic of competency. These studies, primarily in the field of educational administration, involved teaching competency and not management competency. It was not until the late 1960's and early 1970's that McCleary and others extended the competency-based approach to management training (Zeigler & Bowie, 1983). Zeigler was perhaps the first researcher in the field to investigate the area of management competency specifically. In 1979, he proposed a model for management development in sport and physical education that used a competency-based approach (Zeigler, 1979b).

Research concerning the development of management competencies in specialty areas related to the field of recreational sport has been cited primarily in the area of athletics. Early investigations by Sells (1959), Richey (1963), and Reno (1964) were associated with descriptive job analysis. Although these studies did not concentrate specifically on management competencies, they did provide insight as to what competencies were required by athletic administrators.

In a study by Sells (1959), the functions performed and the competencies needed to administer intercollegiate athletic programs were analyzed. The functions were categorized into six functional areas: administration and departmental affairs, duties relating to the participants, finance, personnel, property and equipment, and public relations. Based on the findings, Sells indicated that functions performed are not identical on each campus and competencies are needed in each functional area to administer athletic programs.

One of the purposes of Richey's (1963) study was to investigate the responsibilities of athletic directors in colleges with a male population, as perceived by the presidents and the athletic

directors. In rank order, six responsibilities tended to predominate: teaching class, coaching varsity sports, budgetary responsibilities, conducting and presenting athletic events, scheduling of contests, and advising and counseling students. He found the major areas of difficulty in the athletic program involve budgeting and financial responsibilities.

Reno (1964) evaluated the duties of athletic directors in small colleges in selected states of the Midwest based on number, frequency, importance, and difficulty. This investigation was delimited to four-year colleges with enrollments of 2500 or less that competed in football, basketball, baseball or track. As a result of the study, Reno concluded that there is a wide range of duties which are being performed due to supplementary duties unrelated to athletic administration. In the colleges which had more than 1000 enrolled, a greater degree of uniformity exists in the number of duties performed than in the colleges which had an enrollment of less than 1000 students. As a category, general administrative duties ranked first in importance.

Herron's (1969) study was designed to provide descriptive information relative to the status of the collegiate athletic directorship. Comparisons were made among the study's three groups (junior college, college, university) of athletic directors regarding selected duties of the position. From his analysis, Herron concluded that duties with mean scores of 4.0 or higher are considered highly important in maintaining and promoting internal and external efficiency.

In 1970, shortly after the introduction of the first sport administration program at Ohio University, the American Alliance of Health, Physical Education and Recreation (AAHPER) produced a list of competencies for those individuals interested in pursuing careers in athletic administration. The ten items are:

> (1) role of athletics in education and our society and the rules, regulations, policies, and procedures of the various governing bodies, (2) sound business procedures as related to athletic administration, (3) administrative problems as related to equipment, and supplies, (4) problems related to facilities, (5) school law and liability, (6) factors involved in the conduct of athletic events, (7) good public relations practices, (8) staff relationships, (9) health aspects of sports, and (10) psychological and sociological aspects of sports. (pp. 20-22)

Kinder's (1975) investigation of establishing criteria for a graduate program in athletic administration was based upon a job analysis approach. He found that the duties of the athletic director are varied and multifaceted. On the basis of the job analysis according to frequency, importance, and difficulty of performance, he found a demand for the following courses to constitute the framework of the graduate program:

Organization and Administration of Athletics
Planning, Construction, and Management of Athletic and Physical Education Facilities
Principles of Accounting
Developing Public and Human Relations
History and Philosophy of Athletics
Psychological and Sociological Principles of Athletics
School Law
Special Topics
Internship in Sports Administration

A later study by Williams and Miller (1980) was designed to identify the job responsibilities for intercollegiate athletic directors based on competitive level and gender. From the data, they determined responsibilities are significantly affected by the competitive level (division) of the program administered, but not by the gender of the athletic director or whether the athletic director heads a men's or women's program. They also found some common areas of responsibility apply to all athletic programs.

Davis (1972) conducted a study to identify the duties performed by the administrative head of Health, Physical Education and Recreation. Relationships were tested for significant differences between the selected variables (sex, age, experience, program size, and academic preparation) and the frequency, difficulty, and importance of performing specific duties. Davis found that an increase in age and experience significantly decreases the difficulty of performing duties pertaining to decision making and dealing with people. An increase in the size of the undergraduate professional program significantly increases the frequency and importance of performing duties relating to the budget, program development, and personnel. Finally, administrators who have academic preparation in administration rate duties pertaining to personnel significantly higher in frequency of performance and have significantly less difficulty in performing duties relating to

personnel and public relations than do administrators without academic preparation in administration.

In 1979, Paris undertook an investigation specifically designed to validate and analyze a list of management competencies. His final competency list for sport and physical education administrators, adapted from statements developed for education and the allied health professions, consisted of 40 items. A factor analysis further extracted six dimensions entitled planner, evaluator, educator, fiscal officer, leader, and communicator. From the analysis, Paris reported that community college, university, and secondary school physical education and athletic chairpersons are generally in agreement about the level of importance of four management competency dimensions, but in disagreement regarding the dimensions of educator and communicator. Based on the results, one of Paris' recommendations was a comparative study between the level of management competency and the professional background of physical education, athletic, and recreational administrators.

A similar study was conducted by Cash (1983) in the area of athletic administration to determine and validate the competencies most important for effective functioning. The instrument used in this study consisted of seven management categories (business and finance, communication, director's personal development, physical facilities, personnel, director's professional development, and student-athlete services), which were further developed into 62 competencies. The results of the data culminated in the development and validation of the *Cash Competency Inventory for Intercollegiate Athletic Directors*.

Parks and Quain (1986) conducted a study to gain information on the professional preparation competencies of six sport management areas: physical fitness, sport promotion, sport marketing, sport administration and management, sport directing, and aquatics management. Four perceived competencies were consistent with the six career categories: management, interpersonal communication, public relations, and budgeting. As indicated in this and other studies, practitioners tend to agree with educators concerning the importance of an internship.

In a study by Davis (1987), the courses/competencies identified as necessary preparation for future recreation/sport managers in the private sector were found outside of physical education and recreation departments. The course areas include business, communications, and computer science, with personnel management identified as the most important. Within the realm of physical education and recreation, first aid and safety was identified as the most important competency.

Following the investigations concerning the identification of tasks, skills, and competencies, many of the later studies focused attention specifically on the analysis of management competencies in related areas. In the area of school administration, Voelter (1985) studied the perceptions of selected junior/community college administrators regarding the relevancy of competencies and related skills of school administrators. He found no significant differences in the perceptions of competencies and skills needed in their jobs by those trained in a formal educational administration program in comparison to those not trained in such a program.

In 1986, Case investigated the job performance competencies for sport arena managers in the United States and Canada based on level of responsibility. From his analysis, Case identified entry level competencies as supervision, budgeting, scheduling, communications and public relations. At the middle and upper level, competencies were ranked as budgeting, supervision, scheduling, public relations, and communications.

Ellard (1985) determined the competencies required to manage commercial recreational sport enterprises. Managers and assistant managers were asked to rank the importance and level of proficiency needed in 62 competencies. A cluster analysis method was used to group competencies into five dimensions which included business procedures, resource management, personnel management, planning and evaluation, and programming techniques. Differences were found in the perception of competencies needed between practitioners and educators and between enterprise settings.

The primary focus, in a similar study by Lambrecht (1987), was to identify the competencies needed to manage sports and athletic clubs and to determine if differences existed in required

competencies between varying sizes of clubs. The instrument consisted of 33 competencies and 30 course content areas. A factor analysis generated six factors with a minimum factor loading at .47 (22% of variance) which included design and control, communication, sports skills, public awareness, accounting, and budgeting. Competencies were clustered only for purposes of developing a specialization in sport management curricula. The one-way analysis of variance was applied to each of the competency items as opposed to analysis by dimension. All three club group classifications, based on membership size, scaled "communication with clientele" as the top ranked competency item. Based on the findings of the study, Lambrecht concluded that there is a significant difference in managing various sizes of athletic clubs.

Bretting (1983) formulated competency inventory models representative of selected positions within the sport management area. He investigated the competencies of the Sports Information/Public Relations Director, Marketing/ Promotions Director, and the Business Manager at the professional sports, collegiate sports and commercial fitness sports level. Based on discriminant analysis, using the *Sports Management Personnel Competency Inventory Questionnaire*, Bretting was able to predict and formulate job-models, job-position models, and sports industry level models. A "core of knowledges" was also identified which shared a commonality factor among all of the job-models.

In a study by Hatfield, Wrenn, and Bretting (1987), one of the purposes was to determine the perceived importance of job responsibilities for athletic directors of NCAA Division I-A football programs and general managers within professional sport in an attempt to detect commonalities and differences between their job roles. The instrument contained 50 job competencies grouped into six major areas (labour relations, marketing, financial management, administration, personnel evaluation, and public relations), validated through an "individual item to a priori group" correlation. This procedure was used in order that valid comparisons could be made based on the categories in addition to specific item-by-item comparisons. A discriminant function analysis was applied to the perceived importance scores obtained from the two groups to identify the distin-

guishing areas of concern. A common core of competencies was identified across both groups, while a number of differences were also reported. Labour relations and personnel evaluations were identified as the most important concerns for the general manager position, whereas the athletic directors assigned higher ratings to all other categories (marketing, financial management, administration, and public relations). From the analysis, two areas, financial management and personnel evaluation, attained significance in correctly classifying the athletic administrators (88.6%) and the general managers (81.3%).

The following two studies link the job analysis section with the next section pertaining to training. Besides conducting a job analysis, these studies examined the relationship of selected variables on the perceived importance and performance of specific duties. In 1975, Sutton investigated the similarities and/or differences of the functions of men intercollegiate athletic directors as perceived by three referent groups (superordinates, head football coaches, and athletic directors). The Quadrant Assessment Model (QAM) was utilized to compare the perceptions of how a function was actually performed and how a function ideally should be performed. The QAM permitted the placement of each function into quadrants based on high or low importance and actual performance. This process was performed for each referent group and for the total group. The degree of consensus in ranking between groups was observed. The general consensus of all groups surveyed indicated that the following four functions were the most prominent: planning of future athletic facilities, preparation of the yearly schedule of all sports, dispersal of budgeted finances to the various intercollegiate sports, and approval of departmental requisitions.

The main problem outlined in Morohoshi's (1976) study was to determine the differences between the perceptions of the recreation practitioners and the institution administrators in selected state prisons in the United States regarding the functions of recreation practitioners. Functions were analyzed according to categories of actual performance and ideal performance as perceived by recreation practitioners and the ideal performance as perceived by institution administrators. Based on the findings, significant differences exist between actual performance, ideal perform-

ance as perceived by recreation practitioners, and the ideal performance as perceived by institution administrators in certain functions of recreation practitioners.

2.2.2 Training

Two types of studies are prevalent in the investigation of administrator training. Many studies have used descriptive statistics to report the current status of qualifications, background experiences, and course work obtained by the existing administrators. Secondly, investigators have often elicited perceptions of how helpful training has been to the administrator or speculations on desirable training in attempts to identify predictors of success or competence for the job. Few studies, however, have empirically measured the effectiveness or success of training based on competent performance.

Psychologists and researchers have attempted to measure competence through intelligence or aptitude tests (Jensen, 1972; McNemar, 1964; Terman & Oden, 1947), claiming the IQ tests were of considerable importance in predicting future success. Other researchers (McClelland, 1973; Cronbach, 1970) have argued that intelligence test scores are discriminatory and thus not valid in predicting competence due to the confounding variable, socioeconomic status.

Studies by Marshall (1964) and Taylor, Smith and Ghiselin (1963) concluded that academic success and business achievement have relatively little association with one another. Livingston (1971) confers that "academic ability does not assure that an individual will be able to learn what he needs to know to build a career in fields that involve leading, changing, developing, or working with people" (p. 80). Nickse and McClure (1981) contend that education can improve job performance but not provide a valid measure for success. Kelley (1975), attributes the failure of academic achievement to measure for managerial success to a lack of academic standards. Competency attainment, as perceived by the competency approach to management development, however, offers a frame of reference from which valid comparisons can be studied. Thus, it becomes important to translate the management competencies identified in job analysis into training objectives.

Sport administrators over the years have been trained through a variety of methods, ranging from formal physical education course work to the trial-and-error approach on the job. The first graduate program in athletic administration offered at Ohio University in 1966 included education courses and a required athletic administration internship (Kandel, 1968). Course work was provided through various departments and included: administration, law, economics, physical education, interpersonal communications, psychology, journalism, management, and radio and television.

Several studies (Burelle, 1979; Herron, 1969; Richey 1963; Sells, 1959; Sutton, 1975; Youngberg, 1971) have given attention to the current status and recommended qualifications for athletic directors. In Sells' (1959) analysis of functions and competencies needed to administer programs of intercollegiate athletics, he found competencies were gained through the experience of performing tasks in the athletic program prior to assuming the position of athletic director.

Richey (1963), in his investigation of athletic directors, reported that the directors had strong backgrounds in coaching collegiate varsity sports and personal playing experience on an organized team. From the 77 directors surveyed, 95 percent possessed an advanced degree and 82 percent reported a major in health, physical education, and recreation, on either the undergraduate or graduate level. The presidents surveyed perceived the master's degree as a necessary minimum qualification and believed athletic participation and coaching collegiate varsity sports to be beneficial to athletic directors in performance of assigned duties. As a result of the analysis, a lack of training was reported in the areas of business techniques and public relations. Richey concluded that training of the athletic director should include both selected courses and practical experience.

Herron (1969) conducted a survey to compare the educational preparation, related experience, and selected duties of athletic directors at three college levels. From the analysis of data, he noted that the prevalent field of study was physical education and the master's degree was predominate as the highest level of education for all individuals. The secondary school athletic directorship was the specific area in which most collegiate directors had gained administrative

experience prior to a collegiate experience. Herron also concluded that appointment to the directorship position was contingent upon the ability to assume a coaching responsibility.

Moore's (1974) investigation into the professional background and training, and duties and responsibilities of athletic business managers found a deficiency in the business and management training process. He concluded that additional course work was necessary in computer training, purchasing, budget preparation, insurance policy coverage, team travel procedures, and that an internship program would strongly benefit the business manager in the sport environment. Moore also made the recommendation of adding an athletic administration focus to the curriculum.

In Kennedy's (1978) competency analysis of therapeutic recreation graduates, he found that at the bachelor's level, practitioners have higher performance expectations for program graduates than do educators. Kennedy also concluded that both educators and practitioners expect program graduates to function at higher levels as they progress from one educational level to the next.

Kunstler (1980) identified competencies needed by therapeutic recreation field experience site supervisors in order to provide data on training needs. The respondents perceived all the competencies as needed for supervisors of field experience students in therapeutic recreation. In addition, they perceived themselves to be proficient in all areas and attributed their proficiency primarily to on-the-job experience.

Youngberg's study (1971) surveyed faculty athletic representatives, coaches, and current athletic directors to identify and analyze qualifications recommended for an athletic director to be successful in the position. His findings, indicative of that time, stressed administrative course work in physical education and athletics as the primary focus area, with minor emphasis on business related classes. The minimum courses suggested were the administration of physical education and athletics, the administration of athletic events, and a course dealing with the role of athletics in education. Possessing a master's degree and having coached at the college level were the two most important traits recommended in the study.

Burelle (1979) conducted a follow-up study to assess the qualifications of athletic directors in the Canadian Intercollegiate Athletic Union (CIAU) in terms of the qualifications recommended as essential for successful administration of an athletic program by the Youngberg study. The results were analyzed in terms of age of respondents, highest degree earned, years in the position, CIAU athletic conference, and campus enrollment size. Burelle concluded that the athletic directors were well qualified based on Youngberg's standards (general education, coaching experience, sports participation, and professional involvement). The directors were not as well qualified in terms of administrative experience and related education courses. At that time, in-house promotion of varsity coaches to the position of athletic director tended to prevail in the CIAU.

One of the purposes of Sutton's (1975) study was to compare the prescribed professional preparation of men intercollegiate athletic directors as perceived by the athletic directors, their superordinates, and the head football coaches. In calculating the significance of professional preparation, a mean score of 4.0 or higher indicated that the experience was perceived to be most appropriate to prepare an individual to perform the functions of an athletic director. The general consensus of all groups regarding professional preparation indicated the following to be most appropriate. Educational course work included: public relations, personnel management, organization and administration of physical education and athletics, public speaking, and athletic facilities and equipment. Related work experiences included: college and university administration, assistant athletic director on the collegiate level, athletic director at a college or university, and coach on the intercollegiate level.

Jones (1978) was concerned with investigating the current and desired status of preservice and inservice training in physical education for the handicapped. Using the needs assessment approach, she concluded that there was a discrepancy between the current and desired status with regard to preservice and inservice education. Jones further claimed that training in specialized areas, such as for the handicapped, was not receiving the attention necessary to provide adequate preparation.

Hatfield, Wrenn, and Bretting (1987) examined the demographic, educational, and background experience profiles of athletic directors and general managers. A comparison of recommendations on relevant course work for preparing individuals for leadership positions in professional or intercollegiate athletics was also conducted. They reported that prior to assuming current positions, athletic directors and general managers most frequently held positions as head coach. The general managers indicated less support than the athletic directors for athletic participation and coaching experience contributing to administrative effectiveness. The general category of business management courses was recommended highly by both groups. The athletic directors designated the following courses as most important for career preparation: athletic administration, speech communication, public relations, marketing, and business management. The general managers emphasized most highly courses in business and sport law, public relations, speech communication, labour relations, and marketing.

Williams and Miller (1983) studied athletic administrators to develop a theoretical framework for examining desirable professional preparation patterns. The purpose of the study was to describe the current state of preparation of athletic administrators by examining information relative to demographics, job duties, background experiences and course work undertaken, and to examine the perceptions of athletic directors regarding what experiences and course work should be undertaken for professional preparation. One theory postulated by the athletic directors in this study was that their background experiences and recommendations for professional preparation would be influenced by the level of competitive program administered. Differences in complexity, philosophy, budgets, and staff were thought to influence the perceptions of the athletic directors. Another theory postulated was that the gender of athletic directors would influence recommendations.

From the results, there were significant gender differences reported, but no division differences in both the percentage of athletic directors who had certain coaching, competitive, and administrative background experiences, and in the athletic directors' ratings of how beneficial

these experiences were in performing their job. In terms of administrative experiences, a background of involvement in national meetings, internship training, and a leadership/administrative role were perceived to be beneficial in increasing opportunities for success in athletic administration. In addition, there were very few significant divisional differences reported in ratings of the importance of course work experiences, with no gender differences found. There were differences in personal background, however. Athletic directors who had taken the course work rated those experiences significantly higher than did athletic directors who did not have the background. Highest ratings for course work were in communication skills, business-related skills, and public relations.

In the area of educational administration, Jameson (1985) investigated the possible relationships between principal effectiveness and personality, formal training in administration, and on-the-job experience. The principals were asked to choose either personality, formal training, or experience as being most critical for them in successfully dealing with each of 15 administrative entry level skills for principals. In addition, subordinates were also asked to rate how they perceived the principal to be functioning. The findings indicated that principals perceived themselves to be operating most on the basis of their on-the-job experience. Their teachers perceived them as relying most on their formal training. Eight skills were associated by a majority of the principals with experience, four with personality, and one with formal training.

One of the objectives in Lambrecht's (1987) study was to identify course content areas for purposes of developing sport management curricula for athletic club managers. From the demographic data, the types of degrees reported ranged from business to physical education with no single discipline prominent. Most respondents had limited, if any, sports and athletic club experience, managerial or otherwise, prior to their current managerial position. In addition, 58.3 percent of the respondents had been in their current managerial position for four years or less, 58.3 percent had no club managerial experience prior to their current position, and 57.2 percent had four or less years of related experience prior to their current managerial position. The instrument

listed 30 course content areas from which a factor analysis extracted a five-factor solution: foundations, business management, hotel/restaurant management, accounting, and use of computers.

In addition to the survey research concerning the qualifications of administrators, recent surveys relevant to the programs and curricula available for sport administrators also have contributed to the body of knowledge. Parkhouse (1978, 1980) surveyed 21 programs offering a graduate degree in the area of sport management. The institutions surveyed provided a brief description of the features offered and required within their respective programs. Of the 21 programs reported, nine (43%) required an internship. Facilities and equipment management constituted the most frequently required course within the discipline. Little difference was reported among the courses of study associated with the different specializations. Business administration, as a core component, was only required by half of the programs offering a school and other specialization, as opposed to none of the programs with strictly a school specialization. Parkhouse and Ulrich (1979) summarized the findings of training programs available for sport managers. They identified four major concerns at that time: the development of professional preparation programs are inbred, seldom surveying practitioners or prospective employers; a sizable majority of the preparation courses are physical education related; practitioners prefer a business-related emphasis and; employers are dissatisfied with current preparation.

Less than a decade later, Parkhouse (1987) surveyed 83 institutions in the United States offering undergraduate and/or graduate curricula in sport management to examine the current status of professional preparation. Due to the recent surge in "sport management" more than half of the programs had existed less than five years. Parkhouse reported the sport management curricula varied among institutions, while the field experience was the most frequent offering among sport management programs studied. A list of undergraduate foundation and application courses were identified. A criterion of at least seven foundation courses was reported meeting the minimum standards established by the American Assembly of Collegiate Schools of Business for a major in business administration with an emphasis in general management. The foundation areas

represented those subjects fundamental to the process of sport management. The application courses represented subjects in management-related practices modified specifically to the sport environment. At the graduate level foundation areas were business administration, communication, computer science, educational administration, and psychology.

Among the results, development of specialty tracks were noted in athletic administration, professional sports, facility operations, and fitness related areas. Parkhouse reaffirmed the statement that a one-track curriculum fails to meet the unique competencies required in the variety of sport related occupations. Based on the findings, three major components were identified as necessary in effectively meeting job-related needs of the sport management student: foundation courses, application offerings, and field experiences. Parkhouse contends that neither business nor physical education departments can single-handedly service sport management curricula since applications of business principles unique to sport settings are required. She also recommends an accrediting agency be established in sport management to determine minimal standards for professional preparation comparable to those in business administration and communications.

Koontz (1984) studied administrators of professional sport organizations, sport facilities, private sport clubs, health clubs and sport organizations for their perceptions on the awareness of a sport management degree. She determined from the analysis that one of the reasons for non-employment of sport management graduates in these settings was lack of experience. One reason, among the 40 percent reported not more likely to employ a graduate in sport management was that a business major or an economics major would be able to fulfill job requirements.

Some studies have specifically focused on the improvement of present curriculum design. In 1982, Ulrich and Parkhouse proposed an alumni-based model to sport management curriculum design. The alumni model used performance ratings of employers and measures of satisfaction by alumni in a regression model to identify curricula leading to increased work performance and satisfaction. This model relied on the assumption that employers, rather than educators, are the most qualified to determine the performance level of graduates. One of the major purposes of the

study was to test the hypothesis that alumni work performance on the job was related to assessment of curriculum. From the results, they indicated that alumni reaction to courses predicted a significant portion of variance for satisfaction with graduate training and work performance. The three areas of courses suggested, based on alumni preferences, were organization management, communication, and internship. Courses in motor performance (e.g., coaching, skills, physiology) and business (e.g., finance, accounting, economics) were less emphasized by alumni in their assessment of job performance, job satisfaction, and satisfaction of graduate training.

Miller (1983) collected data on the academic preparation, professional experiences, and selected duties of chief administrators in university and college physical education programs. His study was designed to establish a basis for developing a relevant curriculum for preparing administrators of physical education departments in higher education. Analysis revealed that physical education administrators rated their competence high in physical education type courses but rated the usefulness of this course work low in relation to their administrative duties. There were no significant differences among the three groups (administrators of institutions that granted degrees in physical education at the undergraduate level; at both the undergraduate and masters level; and at the bachelors, masters, and doctoral levels) regarding self-perceived competence in physical education courses. Results also indicated that non-physical education type courses received a low competence rating, but a high projected usefulness rating. Miller concluded that a discrepancy between high importance and low competence indicate top administrators were not adequately prepared to assume their role and duties in higher education. He suggested course work had been limited to the physical education type courses with business, management, and education type courses having been neglected. Miller also proposed the high ratings in the non-physical education course work for usefulness revealed the need and desire for inclusion of such courses in future curricula.

2.2.3 Intramural/Recreational Sport

The term "sport management" is relatively new in the literature when compared to the established term of "athletic administration". The investigation into recreational sport is similarly new when compared to the emphasis placed on the investigation of intercollegiate athletic programs.

Few studies have focused specifically on the administrator of intramural-recreational sport. An effort to address the needs of students preparing for this specialty was made in a joint development between the National Intramural Sport Council and the National Intramural-Recreational Sports Association (Jamieson, 1987). As a result, guidelines reported by Beardsley and Mull (1977, p.11) were initiated for the following areas of study:

Undergraduate - Programming option
- intramural-recreational sports programming
- sports officiating
- safety and first aid
- intramural-recreational sports leadership
- practical experience

Graduate - Administration emphasis
- intramural-recreational sports administration
- research
- philosophy of leisure
- business procedures
- public relations
- internship
- sport facility management and construction
- psychology of sport
- sociology of sport
- human relations
- seminars and field trips

In 1973, Preo pioneered the research in the area of intramural sport. The purpose of his study was to determine, analyze and compare the current status and professional preparation of intramural directors in American four year colleges and universities. From the findings, he indicated that at a minimum, desirable courses for intramural directors would be introductory administration, recreation administration, facilities and equipment, finance and budgeting. Preo also found that the most distinguished intramural directors were older with academic rank who have been in the profession for a long time at the same institution. This group, however, was not statistically different to other members based on current status, and professional preparation.

In a study by Boucher, McMillan and West (1980) the directors of 165 intramural/ recreational sport staff members were surveyed to identify current job responsibilities and to measure job performance based on 10 ability dimensions. Job responsibilities were grouped into two categories. The product category was defined as perceived responsibility producing a tangible result and included: staffing, facility-equipment-inventory control, general clerical, and programming and scheduling. The process category was defined as perceived responsibility involving a method of operations and included: supervision of personnel, program publicity-liaison, program policy official evaluation, and program planning. According to the task-relevant ability results, dimensions that were rated lowest were "knowledge of job" and "previous job experience". The recommendations were that future training programs should focus more on process oriented activities such as decision making, conflict resolution, organizational behaviour, motivation and performance, leadership, and communications.

McLellan and Pope (1984) surveyed college and university professionals familiar with intramural-recreational sport, consisting of directors, educators, and past administrators. In an effort to determine subject areas for preparing these specialized administrators, respondents were asked to rank subject areas from highly valuable to not necessary. Subject areas were formulated on a synthesis of information from job descriptions and graduate program curriculum. Five areas were ranked as essentials:

> (1) organization and administration of intramural-recreation sports, (2) personnel organization and administration, (3) financial management, (4) legal aspects of intramural-recreational sports administration, and (5) current topics in intramural-recreational sports. (p. 58)

They concluded that the important subject areas refute the notion that anyone can direct a successful intramural-recreational sport program.

Jamieson (1980) conducted a study to determine the competencies needed by recreational sports personnel at the entry, middle and top management levels in three institutional settings (education, municipal, military). Due to the relatively large population to draw from, Jamieson delimited her study to post-secondary educational settings with enrollments of 9,000 and above

(N = 100) and considered only full-time professionals in the competency analysis. The response rate for this study was 50.6 percent. She found that in the four year educational institutions, the respondents primarily possessed a degree beyond a bachelor's, majored in physical education or recreation and had been in their present position less than five years. Less than 12 percent had majored in business or education. No significant differences were found among institutional settings based upon the type of competency needed. In addition, no relationship existed between job titles and professional levels in the institutional settings studied. Differences did, however, exist in the competencies determined among the three professional levels. The competencies needed for top management level positions are business and management oriented and considered more applicable to a graduate curriculum. In rank order of importance the competency areas for each level follow:

> **Top** - management techniques, business procedures, legality, governance, safety/accident prevention, programming techniques, facility/maintenance, philosophy, research, communications, and science.
>
> **Middle** - programming, management techniques, safety/accident prevention, governance, philosophy, facility/maintenance, officiating, science, business procedures, communication, research, and legality.
>
> **Entry** - safety/accident prevention, programming, science, philosophy, governance, facility/maintenance, communications, officiating, management techniques, and business procedures.

Jennings (1984) replicated Jamieson's (1980) study to delineate entry level competencies for recreational sport personnel. The purpose of this investigation was to determine if the competencies identified by practitioners were different than those identified by chairpersons of physical education and recreation curricula. Significant differences were found between practitioners and chairpersons in most of the competency areas.

The National Intramural-Recreational Sports Association (1987) recently implemented certification testing. Based on competency areas determined through research and required of recreational sports specialists in entry level positions, the competencies examined include:

> (1) safety/first aid/accident prevention, (2) programming techniques and sports officiating, (3) applied sciences (exercise physiology, sociology, etc.), (4) historical and philosophical foundations, (5) governance, and (6) facility management and operation.

2.3 Summary

Following the early investigations involving job and task analysis, a number of criteria have been used in determining competencies necessary for job performance, ranging from importance and frequency, to level of difficulty and needed proficiency. As a result of these analyses, a variety of management competencies have been developed for sport related positions. In addition, the studies reviewed have provided insight as to the variables affecting the perceived importance of many management competencies identified. The variables critical to this study included the referent groups used in the assessment, level of responsibility, and type of training.

The majority of the literature pertaining to training has surveyed the current status and professional preparation of administrators, as well as the desired training for future success. Many training variables perceived to ensure successful performance were identified as repeatedly occurring in the studies. To date, studies in the sport administration literature have not empirically tested the relationship between training and performance.

In the area of recreational sport, Preo (1973) specifically investigated training of the intramural administrator. Few studies, however, have identified management competencies in this field. Jamieson's (1980) findings specifically provide a list of competencies appropriate for the recreational sport administrator.

Overall, very little research has specifically addressed the analysis of management competencies. The research that does exist lacks generalizability. One reason can be attributed to the lack of a standardized questionnaire. In most instances, researchers have developed their own unique instruments to assess the competencies for a particular specialization or population.

The identification of training which best prepares professionals in sport management competency areas is needed. The physical education curriculum has been reported as currently not serving the full scope of recreational sports. Many studies have suggested that an emphasis in business administration would be beneficial preparation. What very often has not been defined in the literature is the most effective means of attaining competencies. An analysis, based on the impor-

tance and performance of competencies can aid in such an investigation. Since the relationship of training to competency importance and attainment has not been addressed in previous competency studies, further research into the training needs of sport administrators seems to be warranted.

Chapter III

METHODOLOGY

The research design used in this study is presented in this chapter. The selected population, the pilot study, and the development and administration of the instrument are described. The statistical methods and procedures followed in the analysis of the data conclude this chapter.

3.1 Research Design

The research technique which was used to gather data for this study was the survey. Best (1981) has defined the survey technique as "extensive and cross-sectioned, dealing with a relatively large number of cases at a particular time, and yielding statistics that are abstracted from particular cases" (p. 120). The mail questionnaire was selected as the survey instrument. This type of instrument was deemed most appropriate because of its relatively economical and efficient manner in obtaining perceptual data from a large and widely distributed population. The questionnaire is also one of few techniques available for the study of perceptions. Similar approaches have been used in other competency analysis studies (Bretting, 1983; Jamieson, 1980; Paris, 1979; Sanders, 1980; Sutton, 1975; Thiessen, 1981).

Ex post facto research involving factorial designs allow for studying the effects and interactions of two or more independent variables at various levels (Ary, Jacobs, & Razavieh, 1985). Kerlinger (1986) has defined ex post facto research as

> systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables. (p. 348)

A three-factor design was selected for this study that analyzed each independent variable together with the extraneous variables.

Variables

The independent variables pertained to methods of training:

1. Level of Education (*Education*)
   (i) undergraduate study
   (ii) graduate study
   (iii) other

2. Area of specialization (*Specialization*)
   (i) administration major
   (ii) administration minor
   (iii) little to no administration

3. Prior Relevant Experience (*Prior*)
   (i) administrative experience
   (ii) no administrative experience

Extraneous independent variables:

1. On-the-job Experience (*Years*)
   (i) 1 - 4 years
   (ii) more than 4 years

2. Respondent group (*Position*)
   (i) administrators
   (ii) superordinates

The dependent variables were conceptualized as measuring aspects of the underlying variable - management competency:

1. Importance dimensions

2. Performance dimensions

Refer to Appendix K.1 for further explanation on coding of variables.

3.2 Population

The population selected for this study was Canadian colleges and universities, excluding French-speaking institutions, and Ontario satellite campuses. The survey involved 100% of the directors of recreational sport whose primary duties were in the area of intramural recreational sport and 100% of the superordinates at these institutions. A total number of 123 institutions were included in the investigation. Educational settings were chosen because there was an identifiable list of institutions available through national associations, and evidence of sports programming existed in these settings. The mailing list was compiled from the Canadian Interuniversity Athletic Union *1985-1986 Directory*, the Canadian Colleges Athletic Association *1984-1985 Media Guide and Directory*, and the Canadian Intramural Recreation Association (CIRA) *Post-Secondary Survey* (1984) mailing list.

3.3 Development of the Instrument

A literature search identified a set of competency statements, developed by Jamieson (1980), which were suitable for the purposes of this study. The competency statements purported to describe the duties of the recreational sport professional. Jamieson (1980) investigated the most important competencies needed by three levels of recreational sports personnel in three institutional settings. Her instrument, the *Jamieson Recreational Sports Competency Analysis (RSCA)*, contained a total of 112 competency statements grouped a priori, into the following 12 dimensions:

business procedures
communications
facility maintenance
governance
legality
management techniques
officiating
philosophy
programming techniques
research
safety/accident prevention
science

Permission to use and modify the *Jamieson RSCA* was received from Jamieson. Modifications were necessary, due to the nature of this study and included: changes in instructions, expansion of the background information section, deletion of the potential employment and general inquiry sections, rewording of some competency statements, and changes to the measurement rating scales. In order to support these modifications it was necessary to test the adapted questionnaire for validity and reliability.

Since the *Jamieson RSCA* was suitable primarily for the list of competency items, further development of the questionnaire was necessary. The investigator developed the list of administrative experiences and academic courses presented in Section I with reference to Herron's (1969) and Miller's (1983) questions pertaining to educational background and related/professional experience, and Burelle's (1979) list of qualifications. The Sanders (1980), Sutton (1975) and Thiessen (1981) instruments were beneficial in that insights were provided on the instructions and the measurement scales of the competency statements along with assisting with the construction of a workable format for the questionnaire. Subsequently, the rating scales were expanded to a 5-point Likert scale (Kerlinger, 1986) and included a measure for both importance and performance. In addition, the investigator also chose to include a sixth column in the performance scale for "no opinion" responses in the event that no assessment for the competency statement could be made.

3.4 Pilot Study

The adapted version of the *Jamieson RSCA* (see Appendix A) was pilot tested by a group of 12 expert administrators, selected from the Canadian Intramural Recreation Association (CIRA), along with a group of six superordinates ($N = 18$). These individuals met the same preliminary qualifications as the subjects for the field investigation. The two respondent groups, representing 12 institutions, were equally representative of the two institutional levels, college and university.

From the total of 18 questionnaires mailed, 10 were returned. One response was spoiled since it violated one of the delimitations outlined for the study. Thus, nine returns for a 52.9% (9/17 = .53) response rate were used in the pilot analyses.

The participants were requested to complete the questionnaire, as well as comment on its design, content, and clarity. Hence, the purpose of the pilot study was to refine the instrument, to assess its content validity, to test for construct validity based on the relationship between the statements and their groupings, and to determine the internal reliability of the dimensions.

Content validation was considered an appropriate technique for determining the adequacy of the instrument since the statements and dimensions being analyzed were subjective (Kerlinger, 1986). Participants were asked to review the items for relevancy, critically evaluate the appropriateness of the dimensions, as well as edit items and provide additional items where necessary. Content validity was established through the subjective agreement among professionals that the items were representative of the construct of management competency (Zikmund, 1984).

The list of items were further scrutinized by the investigator in order to select and refine items for use in the field study. A value rating of *important*, comparable to a criterion score of 3.0 (refer to Appendix A for rating scale of pilot instrument), was used as the index for inclusion of competency statements in the final questionnaire (Jamieson, 1980; Lambrecht, 1987). On this basis, three statements were omitted from Jamieson's competency list.

Further examination of the statements indicated that additional changes in the instrument were necessary. Certain statements were rewritten to reflect described behaviours which could be observed. If rewording was not possible due to altering of context the statement was deleted from the list. Other items were deleted on the basis of duplication. Twenty-one (21) statements in total were eliminated from the adapted *Jamieson RSCA* and one statement was added under the Communications dimension: "*develops promotional systems for recreational sports programs*".

Rephrasing the rating instructions and some task statements was required as these were perceived by respondents to be unclear and/or confusing. Kerlinger (1986) notes that clear,

unambiguous instructions improve the reliability of the instrument. A sixth column was incorporated under *Importance* in the event the task was important but delegated. Hence, the "Delegated" column was included. Finally, background information pertaining to the superordinate was determined to be essential and needed to be included in Section I for this sub-group.

It would be misleading to faithfully accept the a priori dimensions based on previous research (Kikulis, 1987). Therefore, it was deemed appropriate to statistically analyze the items underlying the construct of management competency. Due to the small number of participants involved in the pilot study ($n = 9$), an item-dimension correlation was calculated independently on the importance and performance data. As a method of determining construct validity, this procedure: *CORRELATIONS* (SPSSx, 1988), produces a Pearson product-moment correlation which measures the relationship between a competency statement and the dimension in which it was placed. Each dimension score used in the correlation was calculated by summing the item scores within the dimension, divided by the number of items in the corresponding dimension. The criterion established for the correlation was that a competency statement must have had a higher correlation (>.01) with its perceived dimension than with the other dimensions (Paris, 1979).

The Pearson correlation was first conducted on the entire 112 items included in the pilot questionnaire. The result was a 40.2% correct prediction rate (45/112 = .40) on the importance data and 15.2% (17/112 = .15) on the performance data. In an attempt to increase the prediction rate with further refinement of the items, a follow-up correlation was performed on the 91 items short-listed from the content validation. The result of this analysis, as presented in Table 1, indicates that the a priori dimensions were a more appropriate representation of importance than performance. A 46.2% (42/91 = .46) correct prediction for importance and 23.1% (21/91 = .23) for performance were reported. The remaining statements supported higher correlations with some other dimension than categorized in the *Jamieson RSCA*. It was decided that the remaining statements should be included in the final revision on the assumption that a larger sample would significantly increase the percent of correct predictions (Nunnally, 1978; Paris, 1979).

Table 1: Pilot Study A Priori Item-Dimension Correlations

Dimensions	Validated Correlations (*n*)		Total (*n*)
	Importance	Performance	
Business Procedures	3	2	9
Communications	1	2	7
Facility Maintenance	5	0	9
Governance	7	1	9
Legality	1	3	6
Management Techniques	6	1	13
Officiating	2	3	4
Philosophy	3	0	4
Programming Techniques	3	2	9
Research	4	3	8
Safety/Accident Prevention	5	2	8
Science	2	2	5
TOTAL	42	21	91
PERCENT	46.15	23.08	100.00

Rothstein (1985) states "a test may be reliable and not valid, but a test that is not reliable cannot be valid" (p. 133). Furthermore, reliability, although necessary for validity, is not in itself sufficient. Cronbach's alpha coefficient of reliability was used as a measure of internal consistency of scale for the 12 a priori dimensions. This technique was performed on the 112 items and on the 91 items selected for use in the field study. The two sets of alpha coefficients as calculated from the importance and performance data are presented in Table 2. The alpha coefficients (n = 112) for importance, ranged in 11 dimensions from .54 (substantial) for Communications to .95 (very strong) for Philosophy (Davis, 1971). The coefficient for the Legality dimension, however, was calculated at .38, indicating its moderate reliability. The validated set of coefficients (n = 91) differed only slightly for the six dimensions in which items were omitted on the basis of the content validation. Coefficients in nine dimensions ranged from .77 for Officiating and Philosophy

to .94 for Facility Maintenance, strongly supporting their respective groupings. The coefficients for Business Procedures (.68), Communications (.54) and Legality (.56) were considered substantial, with Legality showing a marked increase in strength (Davis, 1971).

Table 2: Pilot Study Internal Reliability for A Priori Dimensions

	Cronbach's Alpha			
	Importance		Performance	
Dimensions	**a[1]**	**a[2]**	**a[1]**	**a[2]**
Business Procedures	.68	.68	.88	.88
Communications	.54	.54	.85	.85
Facility Maintenance	.94	.94	.81	.81
Governance	.92	.92	.91	.91
Legality* (-3)	.38	.56	.87	.84
Management Techniques	.90	.90	.73	.73
Officiating* (-4)	.87	.77	.96	.93
Philosophy* (-4)	.95	.77	.91	.74
Programming Techniques* (-5)	.86	.93	.90	.81
Research	.91	.91	.95	.95
Safety/Accident Prevention* (-3)	.88	.90	.91	.88
Science* (-2)	.91	.89	.76	.77

[1]a - n=112 items
[2]a - n=91 items
* - items deleted for field study

In comparison, the two sets of alpha coefficients (n = 112, n = 91) for performance were very strong in all dimensions, with the lowest coefficient occurring at .73 for Management Techniques. This comparison indicates that overall, pilot testers were more consistent on their agreement of performance than with importance.

Based on the results of the pilot analyses, evidence of validity and reliability supports the application of the 91 competencies and the a priori dimensions for the field study.

3.5 Instrument

Findings from the pilot test, as well as recommendations from the investigator and the thesis committee were incorporated into the final revision of the adapted *Jamieson RSCA*. The "*Management Competency and Training Questionnaire*" prepared for each respondent group in the field study (refer to Appendix B) consisted of two separate sections.

Part one was comprised of demographic questions. Two different questionnaires were prepared for the population. Information was elicited from the recreational sport administrator pertaining to the independent variables: (a) highest level of formal education, (b) specialization, (c) prior administrative experience, and (d) years on-the-job experience. Both respondent groups were asked to report the length of time in their current position. This question was important in order to ascertain one of the delimitations set for the population that specified the respondent must have been in the position for at least the past academic year. Superordinates were also asked to state their position title in order that a current mailing list could be developed.

Part two related to the validated management competencies. This section was identical for both respondent groups. Ninety-two (92) competency statements were listed with one statement repeated for a measure of intrarater-reliability. Hence, the complete instrument included 93 competency statements in total. The items were rated on two separate but parallel 5-point Likert type scales ranging from 1 (low) to 5 (high), according to (a) the degree of importance in performing the job of the recreational sport administrator, and (b) the current ability of the recreational sport administrator to perform the task. A sixth column was incorporated into each scale for non-applicable responses as previously discussed in this chapter. Finally, to discourage systematic rating, the competencies were presented in a scrambled list with the items from the various dimensions intermixed.

3.6 Administration of the Instrument

The instrument was mailed to the recreational sport administrators and their superordinates employed in Canadian colleges ($N = 2 \times 85$) and in Canadian universities ($N = 2 \times 38$); excluding the 12 institutions used in the pilot study. A total number of 123 institutions were mailed the survey instrument. The recreational sport administrator at each institution was sent an envelope containing: an introductory letter (Appendix C); endorsement letters (Appendix D) signed by the Thesis chairman and Dean of the Faculty of Human Kinetics at the University of Windsor, and from the research chairperson of the Canadian Intramural Recreation Association (CIRA); a self-addressed stamped envelope with the questionnaire and; a packet containing similar material for his/her superordinate. The recreational sport administrator was requested to forward the enclosed designated envelope to the superordinate. Since an identifiable list of superordinates was not available, all material was initially mailed to the recreational sport administrator.

Questionnaires were coded prior to mailing to ensure accurate follow-up procedures where necessary. Anonymity of respondents was respected by destroying all coding sheets once collection was completed.

A master sheet was developed to record the completed responses for each group (the recreational sport administrators and the superordinates). To avoid confusion in recording the returns, yellow copies were printed for the administrators and green copies for the superordinates. As the questionnaires were returned, each was examined for completeness. Follow-up letters were mailed to individuals who had submitted incomplete surveys requesting completion of responses.

A follow-up procedure was expected to increase the response rate in order to meet the minimum number of cases ($n = 72$) required in the analysis of variance procedures. As indicated from the return in the pilot study, a response rate of approximately 50% was anticipated. Thus, the first follow-up procedure occurred two weeks after the original mailing date when a post card was mailed to the recreational sport administrators who had not yet responded. After three weeks, a second follow-up letter, an additional copy of the questionnaire and return envelope were sent to

the administrators and superordinates who had not responded. Responses received by only the administrator of the institution were followed-up with a letter directly to the superordinate. Non-responses by both the administrator and superordinate at a given institution were pursued in a follow-up in care of the administrator. A final cut off date for inclusion of responses in the data analysis was set at three months following the initial mailing. (Examples of follow-up correspondence are provided in Appendix E.)

3.7 Data Analysis

The measurement scale of the instrument was considered ordinal. Rothstein (1985) suggests that "ordinal data, when not in the form of actual ranks, can be analyzed using parametric statistics as long as the distribution approaches normality" (p. 94). Since more powerful tests less prone to Type II error can be performed through parametric statistics, it was desirable that the data, therefore, was treated as if it conformed to an interval scale. Labovitz (1967) further reports, very little error results even when the assumption of an interval-level measurement scale is violated. Thus, the use of parametric statistics was supported.

In quantifying the responses obtained through use of the questionnaire, the "No Opinion" (*NA*) response under the heading "Current Ability to Perform" was coded as nine (9) and the "Delegated" response under "Importance" was coded as one (1). Consequently, the "No Opinion" performance response was treated as missing in the analyses of the dependent variables.

Responses obtained through the questionnaire were used to establish two profiles referred to as the Ideal (Importance) and Real (Performance) profiles. Each profile was, in turn, analyzed separately.

Upon completion of the data entry, the computer program '*The Statistical Package for the Social Sciences*' (SPSSx, 1988), was employed for all statistical procedures. The first step in the analysis was to obtain frequency distributions on all variables. The frequency tables were examined for errors in the mechanical process of recording the data. Secondly, a crosstabulation was

performed since it highlights errors in data entry and unusual values that cannot be detected in a frequency distribution (Norusis, 1985). The *CROSSTABS* procedure also produced information about the independent variables in order to determine whether coding was too refined for the number of cases and a merging of categories was necessary (SPSSx, 1988). The findings indicated whether the three-factor design was appropriate for this sample.

3.7.1 Reliability and Validity

It was important to establish the validity and reliability of the instrument before undergoing further data analyses. Statistical validity involves assessing the relationship between the variable observed and the behaviour intended to be measured (Rothstein, 1985). Reliability refers to the degree of accuracy or precision of the measuring instrument to yield consistent results (Peter, 1979). Correlation is used extensively in measurement and in test construction to determine both validity and reliability (Nunnally, 1978; Rothstein, 1985).

Factor Analysis was initially conducted because of its data-reduction capability; to see whether underlying patterns of relationship existed so that the data from the numerous statements could be reduced to a smaller set of variables (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The purpose of this analysis was to empirically derive dimensions and to examine the data in terms of the derived dimensions rather than in terms of each separate competency item. Principal components analysis with iterations and varimax rotation was used to extract a set of orthogonal factors for both the importance and performance data (SPSSx, 1988). Thus, two sets of factors were extracted. The technique of extracting the factors generally involves taking out as much common variance as possible in the first factor. Subsequent factors are, in turn, intended to account for the maximum amount of remaining common variance (Norusis, 1985).

The methods for determining the number of factors retained were based on Kaiser's criterion of eigenvalues greater than one and the percent of total variance accounted for by the different number of factors (Kass & Tinsley, 1979). The intent was to extract as many factors as necessary to account for at least 50% of the variance in the data (Chelladurai, Haggerty, Campbell, & Wall,

1981). Cattell's scree test was employed as a secondary analysis in clarifying the number of factors needed to adequately describe the data. Further, the competencies selected to represent the factors required a factor loading of .55 or greater. According to Comrey (1973), a minimum factor loading set at .55 is considered good in comparison with .71 (excellent) to .32 (poor).

Construct validity establishes the degree to which a test measures the underlying concept it was designed to assess (Cronbach & Meehl, 1955). Due to the small sample size, a follow-up correlation was necessary to support the derived dimensions of an otherwise ill-conditioned factor matrix. Therefore, based on the results of the factor analyses, an item-dimension correlation matrix was constructed to test the validity of the derived versus a priori dimensions. Such a procedure has been described by Nunnally (1978) and used in previous studies to establish internal consistency for variable groupings (Chelladurai, Inglis, & Danylchuk, 1984; Hatfield, Wrenn, & Bretting, 1987; Paris, 1979). The procedure involved the Pearson product-moment correlation technique as outlined in the pilot study (SPSSx, 1988). Each set of dimensions was tested using the importance and performance data in order to determine which set was a better representation of both measures. The goal was to select the dimension set which would be used in subsequent analyses based on the greater percent of correct prediction for both measures.

Two dimensions underlie the concept of reliability: repeatability or stability and internal consistency (Zikmund, 1984). A correlation on paired scores from a repeated competency item within both profiles was employed as a measure of stability for intrarater reliability. Festinger and Katz (1966) suggest that once the consistency of the respondent is established, internal consistency of the dimensions can then be examined. Subsequently, Cronbach's alpha, a test of internal reliability, was used to determine the extent to which respondents consistently assigned the rating to a dimension (Novick & Lewis, 1967; Peter, 1979). This procedure was conducted similarly to the item-dimension correlation, using the importance and performance data on the derived sets of factors versus the a priori dimensions.

3.7.2 Analysis of Variance

Underlying many parametric tests of hypotheses and their outcomes is a set of assumptions. Therefore, as a preliminary procedure to accepting the analyses of variance, the data was examined for normality and homogeneity of variance (Keppell, 1982). According to Tabachnick and Fidell (1983), the extent of robustness of various tests to various violations is not currently known for all situations.

"Much behavioral research is multivariate in nature" reflecting "the actual complexity of behavioral 'reality'" (Kerlinger, 1986, p. 524). A multivariate analysis of variance (*MANOVA*) technique permits the testing of the hypotheses with multiple independent and dependent variables. *MANOVA* was deemed an appropriate method of analysis since the dependent measures were conceptualized as measuring aspects of a single underlying variable, management competency. Accordingly, *MANOVA* followed by univariate analyses of variance (*ANOVA*) were conducted on the importance data to test for subgroup differences. In effect, *MANOVA* was utilized to determine "if statistically significant differences on means of several variables occur simultaneously between two levels of a variable" (Zikmund, 1984, p. 529). Three multivariate three-way *MANOVAs* were performed with the six dimensions.

Multivariate analysis was unsuitable, however, for the Performance data since the sample size was largely reduced due to the missing values for non-applicable responses. Subsequently, univariate analysis was performed on each of the six dimensions. Factorial analysis of variance is a statistical method "that analyzes the independent and interactive effects of two or more independent variables on a dependent variable" (Kerlinger, 1986, p. 228). Eighteen *ANOVAs* in total (3x6 = 18) were conducted on Performance.

The alpha level was set at $p < .10$ for all comparisons. The 90 percent confidence interval was used in order to reduce the potential for committing a Type II error of failing to reject the null hypothesis when it is in fact false. The exploratory nature of the study rendered a less conservative level of significance applicable in order to observe as many differences as possible attributable to the various levels of the experimental variables.

Significant findings received further statistical analysis through application of a post-hoc test. Interactions were tested in an analysis of simple effects employing the one-way *ANOVA* procedure (Horvath, 1985). In addition, Scheffe's test was selected to determine the main source of the significance, where applicable, because of its capability in testing any combination of means against any other combination and its suitability for unequal group sizes (Horvath, 1985). Winer (1971) claims it is the most conservative of the post *F*-test comparison procedures inferring the test yields the fewest significant differences.

3.7.3 Competency/Needs Assessment

The purpose of this section was to advance beyond the mere identification of statistically significant different groups and determine the groups best meeting the current needs of the profession. Based on the results of the preceding analyses, the Quadrant Assessment process was used to analyze the discrepancies between the importance and performance profiles for each significantly different sub-group. Subsequently, through the use of the QAM, competency dimensions were classified into quadrants, allowing for the comparison of each sub-group.

The complete sequence of procedures for the implementation of the QAM has been outlined by Pol (1976, pp. 9-10). A modified version of how the data was treated is presented below:

1. Each group was processed separately, thus generating a set of profiles for the overall sample and for each significant group.

2. For each profile a tally of the responses was made for each dimension to indicate the number of responses at each level of the one to five scale.

3. A score for each dimension in each profile was calculated by finding the mean score.

4. From the mean scores of each dimension, the mean and standard deviation for each profile were computed.

5. *Z*-scores were then derived for each dimension in each profile. *T*-scores were also calculated as a verification method. These scores were used because "they are influenced by two critical measures, the mean or Index of importance and performance, and the standard deviation or Index of consensus" (Pol, 1976). In the event of discrepancy between the *Z* and *T*-scores for the same profile, the dimension in reference to the significant group was tested for normality. (Pol originally used *T*-scores.)

6. The mean for each profile was used as the index to determine High-Low values for the profile. "High" was defined as those dimensions with *Z*-scores (*T*-scores) equal to or greater

than the mean. "Low" was defined as those dimensions with *Z*-scores (*T*-scores) less than the mean.

7. The dimensions were then separated into the four quadrants.

Previous studies utilizing the QAM, further ranked the items within each quadrant. This procedure was omitted entirely since the placement of all dimensions, regardless of their rank order, was deemed important to the results of this study. Sanders (1980) recommended this departure if rank ordering served no useful purpose to the study.

In addition, other studies observed the degree of consensus in ranking between the various respondent groups (Pol, 1976; Sanders, 1980; Thiessen, 1981). For the purposes of this study, the *MANOVA/ANOVA* and post-hoc procedures served a similar purpose, but were considered more appropriate due to their capability in determining if and where significant differences existed among respondent groups.

The investigator was interested in the comparison between dimensions classified into Quadrant 1 and the other quadrants. Quadrant 1 can be interpreted as containing dimensions of high priority and which respondents perceived could be presently accomplished with a high degree of proficiency. It follows that administrators with competencies identified in this quadrant are best meeting the current needs of the profession.

3.8 Summary

In this chapter the research design used in the study was discussed. The population and the development and administration of the instrument were also described. The chapter concluded with a description of the statistical treatments applied in the analyses of the data. (Refer to Appendix J.1 for a complete analysis overview.)

The procedures presented were deemed necessary in order to identify the training best meeting the current needs of the recreational sport administrator. The following is a summary of the steps performed in solving the general and sub-problems:

1. Sets of competency dimensions were tested for validity and reliability.

2. Significant differences were determined for perceived "*importance*" and "*performance*" as a result of training.

3. For each significantly different group, the QAM was used to classify the competency dimensions into high-low categories for importance and performance in order to identify areas of need and competency attainment.

4. Based on the areas of need and competency attainment, groups were compared to determine the training best meeting the current needs of the profession as evidenced by Quadrant 1 placement.

In the next chapter, Chapter IV, the results of the data analysis are presented. Following the presentation of the results, a discussion of the findings is included in Chapter V.

Chapter IV

RESULTS

The purpose of data analysis is to summarize data into an interpretable form (Norusis, 1983) so that the relations of research problems can be studied and tested (Kerlinger, 1986). In particular, the data collected in this study is analyzed to evaluate the effect of the independent variables on the behaviour of the subjects, as reflected by the dependent variables (Rothstein, 1985). However, in order to become familiar with the characteristics of the sample, the chapter begins with the descriptive presentation of the data using categorical frequency distributions and measures of central tendency.

In this chapter and subsequent chapters, competency items, factors, and dimensions are presented by abbreviation and/or number for the intent of brevity. The item number facilitates identification of each item's original order of presentation in the "*Management Competency and Training Questionnaire*". The reader is referred to Appendix F, G, and H for wording of items, by factor, and by dimension respectively.

4.1 Descriptive Results

Response Rate

Of the 246 questionnaires mailed to recreational sport administrators and their superordinates in colleges and universities across Canada, 126 (51.2%) were returned. The population was reduced by 12 responses which were spoiled due to violation of a delimitation, yielding 114 usable questionnaires for a return rate of 48.7% (114/234 = .49). Individual return rates for the two respondent groups are provided in Table 3.

Table 3: Return Rate of the Mailed Questionnaire

Participants	Mailed (*n*)	Returned (*n*)	Spoiled (*n*)	Useable (%)
ADMINISTRATORS				
College	85	52	2	60.24
University	38	22	0	57.89
Sub-total	123	74	2	59.50
SUPERORDINATES				
College	85	33	6	34.18
University	38	19	4	44.12
Sub-total	123	52	10	37.17
TOTAL	246	126	12	48.72

The response rate obtained in the study was close to that anticipated from the pilot study, which yielded a response rate of approximately 53% using parallel procedures and a similar data-collection instrument. The response rate compares favorably to other response rates obtained in studies of a similar nature investigating performance measures, which ranged from 34.5% (Sutton, 1975) to 53.8% (Morohoshi, 1976).

Demographic Characteristics by Respondent Group

A fundamental aspect of this study was the identification and description of participants on the basis of their training backgrounds. In the demographic section of the questionnaire, administrators identified their level of formal education, specialization, prior relevant experience, and number of years experience on-the-job. Data generated from these variables was matched to the respective superordinate responses. The results indicate that the sample consisted of 72 (63.2%) recreational sport administrators and 42 (36.8%) superordinates. One superordinate response failed to be matched, due to administrator non-response. Thus, missing demographic data forced exclusion of this response from further analyses requiring such information.

In terms of formal education levels, groups were determined on the basis of the highest degree earned. A substantial number of administrators, 45 (39.8%) possessed college diplomas or bachelor's degrees, 25 (22.1%) had attained master's or doctoral degrees, and 2 (1.8%) had some other or no formal training. The superordinate group represented 27 (23.9%) administrators with college diplomas or bachelor's degrees, 13 (11.5%) with master's or doctoral degrees, and 1 (0.9%) with some other or no formal training. The respondents with some other or no formal education were excluded from subsequent analyses because the relatively small percentage was inadequate to represent this category in determining significant mean differences. Thus, level of formal education was partitioned into two categories on the basis of undergraduate or graduate level study.

Another aspect of formal education examined was the major area of study or specialization. Groups were categorized according to the degree of concentration in administration based on a checklist of courses (refer to Appendix K.1 for course list). In the administrator group, 21 (18.6%) had a major (over 9 formal courses) in the area of sport administration and/or administration, 36 (31.9%) had taken some formal courses (4 - 9) in this area, while 15 (13.3%) had taken few to none (0 - 3). The superordinate group represented 14 (12.4%) administrators with a major in the area of sport administration and/or administration, 22 (19.5%) with some formal course work in this area, and 5 (4.4%) with little to no course work training in this area of specialization.

In terms of prior relevant experience, groups were categorized according to sport administration and/or administrative experience in comparison with no experience in these areas (based on a checklist of experiences - Appendix B). The majority of administrators, 47 (41.6%) reported prior administrative experience, while 25 (22.1%) had no prior experience in an administrative role. The superordinate responses represented 24 (21.2%) administrators with prior administrative experience, and 17 (15.0%) without prior experience in administration.

In addition, the number of years experience on-the-job was partitioned into two categories. Respondents with 1 to 4 years on-the-job experience consisted of 39 (34.5%) administrators,

while 33 (29.2%) held over 4 years experience in the position. Superordinate responses represented 18 (15.9%) administrators with 1 to 4 years on-the-job experience and 23 (20.4%) with over 4 years experience in the position.

Level of Competency Importance and Performance

The mean level of importance and performance assigned by the normative group to each item is provided in Appendix I.1, listed in numerical order. The importance scores (mean value assigned by the normative group) ranged from a low of 2.01 to a high of 4.52 on a 5-point scale from 1 to 5. Standard deviations ranged from .69 to 1.53. The mean importance score was 3.35. According to the importance index in the instructions, ratings of 2 to 3 indicate that the item has *minimal importance* in the position of recreational sport administrator and only 19 items were rated this low; 70 items were rated between 3 and 4 as *important* and; 4 items were rated above 4 as *very important* to 5 being *essential*. No items received a rating of 1 to 2, *not important*.

The performance scores (mean value assigned by the normative group) ranged from 2.31 to 4.26 on a parallel 5-point scale and the standard deviations ranged from .75 to 1.27. The mean performance score was 3.36. The performance index in the instructions indicated that performance of items with ratings of 2 to 3 was *slightly knowledgeable* and only 7 items were rated at this level; 85 items were rated between 3 and 4 as *knowledgeable* and; 1 item was rated above 4 *very knowledgeable* to 5 being *expert*. No items received a rating of 1 to 2, *needs improvement*.

4.2 Reliability and Validity

The first research question addressed in this study was focused on determining a homogeneous grouping of competencies providing a valid and reliable scale for both importance and performance measures of management competency. Tabachnick and Fidell (1983) suggest a general rule is to obtain the best solution with the fewest variables possible. The procedure involved a comparison of a priori and empirically derived dimensions in three stages which follow later in this section.

The problem of missing data was initially considered prior to performing the statistical tests. A number of procedures have been recommended by Marascuilo and Levin to remedy incomplete data sets (1983, pp. 66-67). The procedure selected is known as the pairwise deletion method. According to this method, all subjects are retained, but they contribute only to those pairs of variables for which they have data.

Stage One

In order to establish the validity and reliability of the items and a priori dimensions, estimates for both internal consistency and stability (test-retest reliability) were calculated. The test-retest reliability coefficient, also referred to as a coefficient of stability, is indicative of the consistency of respondents' scores over time (Ary et al., 1985). Test-retest correlations were determined on a repeated item (Nos. 24 and 64 in Appendix F) within each scale. The reliability coefficient for importance was .54 and .60 for performance, which may be in part due to the length of the questionnaire. However, according to Nunnally (1987), the scales demonstrated satisfactory levels of test-retest reliability. He suggests in early stages of research, modest reliability in the range of .50 to .60 will suffice. According to Zikmund (1984), if the measure is stable, the reported test, when administered under conditions similar to the first test, should obtain similar results over time.

Peter (1979) recommends that retest reliability should be supplemented with internal consistency estimates. Thus, the internal consistency of the a priori dimensions within each profile was calculated using Cronbach's alpha (see Table 4). Cronbach's coefficient alpha is the most commonly accepted formula for assessing the reliability of a multi-item measurement scale (Peter, 1979). To assess the internal consistency or homogeneity of a multiple-item measure, scores on subsets of the items within the scale are correlated (Novick & Lewis, 1967; Peter, 1979). Nunnally (1978) further notes the precision of the reliability estimate is related positively to the number of test items.

Table 4: Internal Reliability for A Priori Dimensions (93 items)

Dimensions	Cronbach's Alpha Coefficients: Importance	Cronbach's Alpha Coefficients: Performance	Items (*n*)
Business Procedures	.82	.78	9
Communications	.79	.80	8
Facility Maintenance	.80	.87	9
Governance	.87	.86	9
Legality	.72	.76	6
Management Techniques	.84	.90	13
Officiating	.82	.77	4
Philosophy	.76	.80	4
Programming Techniques	.83	.79	9
Research	.85	.84	9
Safety/Accident Prevention	.83	.83	8
Science	.76	.77	5

The alpha coefficients for importance ranged from .72 (legality) to .87 (governance). The reliabilities for performance dimensions ranged from .76 (legality) to .90 (management techniques). The very high coefficient for Management Techniques may be partially attributed to the larger number of test items in comparison with other dimensions. The very strong degrees of internal consistency reported within the dimensions indicate that items within each a priori dimension relate highly to one another. The findings also show that the range of coefficients measuring importance are stronger in the field study as compared to the reliability coefficients of the pilot study, shown in Table 2 on page 58 (items $n = 91$). Since the reliability coefficient increases with the heterogeneity of the subjects, the difference may be explained by the increased number of subjects in the field study. As a result of heterogeneity, the measurement procedure is capable of discriminating between the various subjects. The range of coefficients for performance, however, parallel the coefficients in the pilot study ($n = 91$). Performance coefficients may not be as influenced by the increased number of subjects in the field study due to incomplete data

sets causing fluctuating sample sizes. The a priori coefficients for importance and performance indicate satisfactory levels of reliability (Nunnally, 1978).

The degree of construct validity is the proportion of the test score variance that is attributable to the construct variable (Cronbach & Meehl, 1955). Therefore, evidence of homogeneity within a test is relevant in judging construct validity. Item-dimension correlations were employed as a test of internal consistency in order to substantiate the a priori categories. The results of the correlations for the two data sets (importance and performance) are presented in Table 5. As was anticipated from the pilot study, the number of high correlations with the conceptual dimension was increased with the larger sample size. The correlations of 81 of 93 items (81/93 = .87) for importance and 61 of 93 items (61/93 = .66) for performance were higher with their own dimensions than correlations with other dimensions.

Table 5: A Priori Item-Dimension Correlations

	Validated Correlations* (*n*)		Total (*n*)
Dimensions	**Importance**	**Performance**	
Business Procedures	7	4	9
Communications	8	6	8
Facility Maintenance	8	7	9
Governance	7	5	9
Legality	6	4	6
Management Techniques	10	9	13
Officiating	4	4	4
Philosophy	4	4	4
Programming Techniques	6	3	9
Research	9	7	9
Safety/Accident Prevention	7	4	8
Science	5	4	5
TOTAL	81	61	93
PERCENT	87.10	65.59	100.00

* $p < .01$

The findings indicate that the 93 items and a priori dimensions demonstrate a satisfactory measure of competency importance when tested for reliability and validity. The low validity of the competency performance measures suggests that there is a margin for improvement of the homogeneous groupings of competencies. Therefore, in an attempt to maximize the reliabilities and validity of the dimensions the items were subjected to further analysis in the next stage.

Stage Two

The second stage of determining a homogeneous grouping of competencies was concerned with the empirical derivation of dimensions for importance and performance. This stage served several purposes: (a) simplification of the instrument for respondents by reducing the number of items and thus, the amount of time required to respond, (b) provision of a workable format, through reduction of items and dimensions, for subsequent statistical analysis, and (c) development of a psychometrically sound scale for both importance and performance measures. One of the underlying purposes of this study was to compare the reliability and validity of the a priori dimensions versus empirically derived dimensions.

Factor analysis is perhaps one of the most powerful methods of establishing construct validity. Construct validity concerns the property being measured and is defined by the proportion of the total variance of a measure that is common factor variance (Kerlinger, 1986). The importance and performance data was factor analyzed to determine whether or not the scale was multidimensional. Since the work of Jamieson (1980) is based on theoretical a priori dimensions, no empirical rationale has been established for specifying a particular factor structure. Thus, an exploratory factor analysis approach was taken. According to Nunnally (1978), principal components and varimax rotation work "so well for exploratory factor analysis that it has become hard to improve upon" this analysis (p. 385). The linear combinations that underlie principle component analysis are mutually orthogonal, or uncorrelated with one another. As a result, the principal component factor explains more variance than would the loadings obtained from any other method of factoring (Nunnally, 1978).

A principal objective of factor analysis is to attain a parsimonious description of observed data in that a large number of variables are reduced to as few dimensions or constraints as possible (Harman, 1976). Several solutions were computed using various factor loadings. Since the results of the factor analysis were ill-conditioned due to the small sample size, these findings are reported in the Appendix.

For importance, 22 factors were extracted, from which a six-factor solution with the minimum factor loading set at .55 (30% of variance) was found to be the most meaningful (refer to Appendix I.2). According to Chelladurai, Haggerty, Campbell, and Wall (1981), it is ideal to select three or more items to represent a factor. Peter (1979) further notes coefficient alpha is applicable for scales containing a minimum of three items. Since the seventh factor consisted of only two competencies, its reliability could not be adequately established and therefore was omitted from the solution.

The results of this factor analysis verified that 31 competencies were represented in the six dimensions of competency importance. The items grouped together in an interpretable pattern. An itemized list of competencies composing the importance dimensions is presented in Appendix G. The six factors, each with eigenvalues ≥ 1.0, accounted for 51.1% of the total variance (refer to Appendix I.3 for explained variance of factor extraction). Cattell's scree test also provided support for the six-factor solution (see Appendix J.2 for the scree plot). Experimental evidence indicates that the scree, which is the gradual trailing off, begins at the true number of factors (Norusis, 1985).

For the performance data, 24 factors were extracted, from which a seven-factor solution was selected with the minimum factor loadings set at .55 (refer to Appendix I.4). Since the fifth and seventh factors consisted of only one and two competencies, respectively, they were omitted from the solution. The seven performance factors selected accounted for 55.5% of the total variance (refer to Appendix I.5 for explained variance of factor extraction). Additional support for this finding was provided by inspection of the scree plot (see Appendix J.3). On the basis of the fac-

tor analysis, 36 competencies were selected to represent the seven dimensions of competency performance. An itemized list of the competency dimensions is presented in Appendix G.

Subsequently, the factor solutions were tested for internal consistency. One of the purposes was to validate the applicability of each set of factors in measuring both importance and performance scales. The importance dimensions and selected items were validated through item-dimension correlations. One hundred percent (n = 31) of the items supported their factored dimension through higher correlations than with any other dimension. The internal consistency of the derived importance factors was also tested on the performance data. The item-dimension correlations of 30 of 31 items (97%) were more highly correlated with the factored dimension than any other grouping. The results, presented in Table 6, strongly support the six-factor solution for importance.

Table 6: Importance Item-Dimension Correlations (31 items)

	Validated Correlations* (n)		Total (n)
Dimensions	Importance	Performance	
Factor 1	11	10	11
Factor 2	4	4	4
Factor 3	3	3	3
Factor 4	4	4	4
Factor 5	5	5	5
Factor 6	4	4	4
TOTAL	31	30	31
PERCENT	100.00	96.77	100.00

* $p < .01$

In addition, the performance dimensions and selected items were validated in parallel procedures conducted for the importance dimensions. Similar to the importance results, 100% (n = 36)

of the performance items supported their factored dimension through higher item-dimension correlations than with any other dimension. As well, the performance factors were cross-validated on the importance data. The correlations of 33 of 36 (92%) items using importance data supported the derived performance factors. These results, refer to Table 7, validate the seven derived performance factors as a measure for both importance and performance.

Table 7: Performance Item-Dimension Correlations (36 items)

	Validated Correlations* (*n*)		Total (*n*)
Dimensions	**Importance**	**Performance**	
Factor 7	6	9	9
Factor 8	6	6	6
Factor 9	7	7	7
Factor 10	4	4	4
Factor 11	4	4	4
Factor 12	3	3	3
Factor 13	3	3	3
TOTAL	33	36	36
PERCENT	91.67	100.00	100.00

* $p < .01$

The internal consistency or homogeneity of the factor solutions was also cross-validated for each scale. Using the derived importance dimensions, Cronbach's alpha yielded coefficients ranging from .83 in four of six dimensions to .92 for the importance data. The same dimensions yielded coefficients ranging from .70 to .90 for the performance data. The results, presented in Table 8, show that the range of coefficients in the factored dimensions, using the importance data, is higher than that of the a priori dimensions presented in Table 4 on page 73. This finding supports the use of the derived importance dimensions when measuring competency importance.

The range of coefficients for the factored importance dimensions, using the performance data, fell below the lower bound coefficients for the a priori dimensions, as seen in Table 4 on page 73. This finding indicates that performance measures are somewhat more reliable using the a priori dimensions. However, since the items were significantly reduced from 93 in the a priori dimensions to 31 in the factored importance dimensions and since .70 is an acceptable reliability, the use of the derived dimensions over the a priori dimensions is supported in measuring competency performance. The findings also show that Factor 6, although derived from the importance data, has a higher reliability for performance. This increase may be attributed to the large subject variance in measuring competency performance.

Table 8: Internal Reliability for Importance Dimensions (31 items)

	Cronbach's Alpha Coefficients		Items (*n*)
Dimensions	**Importance**	**Performance**	
Factor 1	.92	.90	11
Factor 2	.81	.76	4
Factor 3	.83	.78	3
Factor 4	.83	.70	4
Factor 5	.83	.77	5
Factor 6	.83	.88	4

The derived performance dimensions yielded reliability coefficients ranging from .72 to .93 using the performance data. When the same dimensions were tested for internal reliability using the importance data, the alpha coefficients ranged from .28 to .83. The results, presented in Table 9, show that the range of coefficients using the performance data fell mainly in the range of coefficients for the a priori dimensions, as shown in Table 4 on page 73. Since the derived performance dimensions consisted of 36 items, as compared with 93 items in the a priori coefficients, this set of seven dimensions adequately measures performance with fewer variables. The perform-

ance dimensions, on the other hand, do not compare favorably with the a priori coefficients (shown in Table 4 on page 73) when testing the importance data. The low coefficient for Factor 12 (.28) indicates a lack of homogeneity among the items in this dimension (Nunnally, 1978). In addition, Factor 10 has a higher reliability on the importance data, even though it was derived for performance. This slight increase may be attributed to a larger subject variance in measuring importance on this particular dimension. The findings indicate that the derived performance factors are not as reliable as the a priori dimensions when measuring competency importance and therefore, questionable for use in subsequent analyses.

Table 9: Internal Reliability for Performance Dimensions (36 items)

	Cronbach's Alpha Coefficients		Items (*n*)
Dimensions	**Importance**	**Performance**	
Factor 7	.83	.93	9
Factor 8	.84	.89	6
Factor 9	.82	.86	7
Factor 10	.83	.81	4
Factor 11	.84	.86	4
Factor 12	.28	.72	3
Factor 13	.67	.77	3

In summary, the derived performance dimensions had high reliabilities in all areas for performance, but inadequate reliability in one dimension for importance (.28). Furthermore, 92% of the items were validated in the item-dimension correlations. In order to maximize the validity and reliability of the factors, it was necessary to only eliminate one item from an importance factor, whereas the performance factors required deletion of three items from Factor 7 and deletion of Factor 12 in its entirety. The derived importance dimensions, consisting of 31 items, tested favorably for both importance and performance concerning internal reliability and consistency

(validity). Therefore, the derived importance dimensions were selected for further refinement over the a priori dimensions and the seven-factor performance solution.

Stage Three

The third stage in the development of a psychometrically sound scale for both importance and performance was concerned with further refinement of the importance dimensions in an attempt to maximize the reliability and validity of the scale. With regard to validity, since the item-dimension correlations yielded 100% of the items supporting their derived importance dimension, only the performance validity needed to be improved. Thus, since Item 38 in Factor 1 did not correlate highly with its derived factor, it was eliminated in an attempt to increase the item-dimension correlation to 100% for performance. The results, presented in Table 10, indicate 100% support for both measures in favouring the factored dimensions. The item-dimension correlation coefficients, from which Table 10 data was derived, are presented in Appendix I.6. Although the deletion of one item improved the validity for performance, the alpha coefficients remained the same, ranging from .70 to .92 across both scales (refer to Table 11). The relatively high alpha coefficients indicate good internal consistency. Overall, the refined importance dimensions provided the most valid and reliable measure for both importance and performance with the fewest items and dimensions possible, and thus were selected for subsequent analysis.

Since factor analytic studies were non-existent in the recreational sport administration literature, factors could not be studied to ensure the selected dimensions included the most important dimensions. As a result, titles were arbitrarily assigned to each of the dimensions and are assumed to indicate the nature of the competencies within each grouping.

Table 10: Importance Item-Dimension Correlations (30 items)

Dimensions	Validated Correlations* (*n*)		Total (*n*)
	Importance	Performance	
1.Procedural	10	10	10
2.Fiscal	4	4	4
3.Conceptual	3	3	3
4.Communication	4	4	4
5.Health & Safety	5	5	5
6.Facility Management	4	4	4
TOTAL	30	30	30
PERCENT	100.00	100.00	100.00

* $p < .01$

Table 11: Internal Reliability for Importance Dimensions (30 items)

Dimensions	Cronbach's Alpha Coefficients		Items (*n*)
	Importance	Performance	
1.Procedural	.92	.90	10
2.Fiscal	.81	.76	4
3.Conceptual	.83	.78	3
4.Communication	.83	.70	4
5.Health & Safety	.83	.77	5
6.Facility Management	.83	.88	4

4.2.1 Factor Interpretation

The description and interpretation of the six factors used in subsequent analysis follow. Refer to Appendix H for an itemized list by dimension.

Factor 1. Procedural: this factor contains the most items and accounts for the greatest share of the variance. Since many of the items emphasize program procedures involving rules, regulations, and protests, this factor is labelled "procedural".

Factor 2. Fiscal: the four items contained in this factor refer to the financial competencies of the recreational sport administrator. The criterion suggests that responsibility ranges from seeking sources of income to preparing financial reports.

Factor 3. Conceptual: the three items in this factor reflect the "conceptual" competencies required in performing the role of recreational sport administrator. The administrator must have a basic understanding of recreational sport, its organization and programming opportunities, as well as its levels of competition.

Factor 4. Communication: the fourth factor emphasizes the role communication plays in linking publicity and promotion to leading staff in planning program strategies.

Factor 5. Health and Safety: the five items specified in this factor emphasize the unique competencies of the profession which are basic to the health and safety of the participant.

Factor 6. Facility Management: the sixth factor relates to the role facility management plays in recreational sport administration. The competencies extend from routine inspections to planning schedules for tomorrow's anticipated participant needs.

4.3 Analysis of Variance

Three designs were analyzed for competency importance and performance using the selected six-factor solution. Each design included one training variable and was controlled for years experience on-the-job (Years) and respondent group (Position), formulating a three-way design. Thus, the three designs were: (a) Prior experience (Prior) x Years x Position (2 x 2 x 2), (b) Education x Years x Position (2 x 2 x 2), and (c) Specialization x Years x Position (3 x 2 x 2).

In the analysis of differences between groups, the composite factor scores were computed by summing the scores on the factor items, divided by the number of items in each factor. This procedure of computing factor scores has been used by Chelladurai et al. (1981).

The problem of missing performance data due to non-applicable responses was further complicated with the simultaneous analysis of several dependent variables. The use of multivariate

statistics reduced the performance cases by 72% (82/114 = .72). However, since *ANOVA* procedures were deemed adequate in answering the research question using an orthogonal factor solution, the limitation was judged not to be a serious problem. Consequently, the performance data was subjected to *ANOVA* procedures.

4.3.1 Assumptions

The interpretation of many parametric tests is based upon a set of assumptions underlying the data. In particular, the analysis of variance (*ANOVA*) tests of significance assume that: (a) the distribution underlying the dependent measure is univariate normal, and (b) the populations from which the sample is drawn have approximately the same variability (Kraus & Allen, 1987). The assumptions of multivariate analysis of variance (*MANOVA*) closely parallel those of *ANOVA*.

The research problem posed in this study was typically multivariate in nature. The main question was to determine if the six dimensions of management competency were related to the independent training variables. Since the presence of more than one dependent variable introduces the possibility of varying degrees of correlation between the dependent variables, the assumptions of *MANOVA* were first tested with regard to normality, equal variance-covariance matrices, and multicollinearity and singularity (Barker & Barker, 1984).

If the dependent variables represent a single underlying variable, Bisken (1983) suggests, *MANOVA* is determined to be the optimal technique, over *ANOVA*, for determining significant mean differences among two or more groups. However, there is no statistical reason to use the *MANOVA* procedure if the dependent variables are determined to be uncorrelated (Norusis, 1985).

Before proceeding, it was noted the cells in the factorial design had an unequal number of scores, causing the design to become nonorthogonal. Nonorthogonality is automatically handled in the SPSSx program through the regression approach, which is the default, in *MANOVA* and the classic experimental approach in *ANOVA*. In these two approaches the order in which the factors

are listed is not important in the assessment of the main effects and interactions. Bartlett's test of sphericity was used as a preliminary test to determine whether the correlation of variables provided an identity matrix of uncorrelated variables. Since the observed significance level for importance was small (<.0005), the hypothesis that the correlation matrix was an identity matrix was rejected, indicating that the dependent variables were correlated. Also supporting the results of Bartlett's test, the half-normal plot of the transformed (Fisher's Z) correlation coefficients showed deviations from linearity, suggesting that the dependent variables were not independent. This finding, although unexpected due to the orthogonal factor solution, may be explained by the selection of only high loading items. Therefore, due to the nature of the inter-correlation of dependent measures, the researcher decided to follow *MANOVA* by univariate analysis of variance.

Multicollinearity and singularity were assessed using the determinant of the pooled within-cells correlation matrix. "Multicollinearity occurs when two variables in a matrix are perfectly (or nearly perfectly) correlated and when they show a similar pattern of correlations with the other variables" (Tabachnick & Fidell, 1983, p.82). Singularity occurs when one score is a linear (or near linear) combination of others. None of the scores were close to being perfectly correlated, and none of the scores were a linear combination of the others, as shown in Appendix I.7. Therefore, although the dependent variables were correlated, the determinant of the within-cells correlation matrix for importance was sufficiently different from zero that neither multicollinearity nor singularity was judged to be a problem (Tabachnick & Fidell, 1983). A determinant close to zero indicates that at least one of the variables contains redundant information to the other dependent variables.

Since univariate normality is a condition for multivariate normality, which is not itself a testable hypothesis (Tabachnick & Fidell, 1983), the importance and performance criteria were, therefore, tested for univariate normality. Although not a guarantee of multivariate normality, a test of univariate normality is desirable in order to determine if data transformations are necessary

for subsequent analyses. In addition, any nonnormal distribution is likely to violate the assumption of multivariate normality (Norusis, 1985). Measures of skewness for all performance criteria reported a z value within ± 2.58, maintaining the assumption of normality of the distribution (Tabachnick & Fidell, 1983). However, measures of skewness for the importance criteria showed Factors 2, 4, and 5 with z values in excess of ± 2.58, leading to rejection of the assumption of normality of the distribution at $p \leq .01$. When measures of skewness for importance were repeated by respondent group, only Factor 4, as perceived by the administrators, continued to violate the assumption of normality.

The assumptions of normality and linearity are interrelated. In support of the normality findings, the normal probability plot revealed the same three dimensions for importance were nonlinear. The plot is obtained by ranking the observed values and pairing each value with an expected normal value for a sample of that size (Norusis, 1985). The plot should be linear if the distribution is normal. To further assess the linearity of the normal probability plot the detrended normal plot was used. If the values cluster roughly in a horizontal band around zero, the distribution of the variable is normal. Outlying points were verified to ascertain that they had been correctly recorded and entered. Upholding the previous test of normality, three dimensions violated the normality assumption.

As a result, Dimensions 2 and 4, had severe negative skewness and were reflexed and transformed using the logarithmic transformation. Dimension 5 had moderate negative skewness, was reflexed and the square root transformation was performed. Although the transformations created normal distributions for the three new dimensions, the improvement was questionable since the results of subsequent analyses were similar to the untransformed data results. Consequently, the original data sets were used in the analysis and interpretion of the results. It has been reported that *ANOVA* and *MANOVA* are fairly robust under violations of normality and homogeneity, with the major exception occurring for small and unequal sample sizes. Since, these violations only lead to conservative levels of significance or loss of power, providing more protection against

Type I error and less protection against Type II error (Ito, 1984), additional support was provided for retaining the variables in their original form.

The univariate tests for homogeneity of variance-covariance matrices were performed for each variable individually within the three importance designs. The Cochran and Bartlett tests give comparable results, however, in Bartlett's test the cell sizes need not be equal. Furthermore, the sampling distribution of the Bartlett test has a smaller standard error and hence provides a more powerful test of the hypothesis being tested (Winer, 1971). Bartlett Box F supported equal variance-covariance matrices (p <.01) for all variables in the importance designs. In addition, homogeneity of variance tests for the performance designs indicated no significant deviations for Cochran C at the p <.01 level.

The Box's M statistic was computed to determine if the variance-covariance matrices across all levels of between subjects dimensions was equal. The results of the multivariate test for equal variance-covariance matrices produced no significant deviations for Box's M at the p <.01 level, indicating that there was no reason to suspect unequal variance-covariance matrices. Norusis (1985) notes that the Box's M statistic is highly sensitive to deviations from normality. As a result, the robustness of significance tests was expected.

In summary, the rejection of the hypothesis that the correlation matrix was an identity matrix and the absence of multicollinearity and singularity provided support for the use of *MANOVA* in the importance designs. Violations of normality did not significantly deviate the equal variance-covariance matrices, guaranteeing robustness of the *MANOVA* procedure. Due to the reduction of cases in the performance criteria when subjected to multivariate procedures, performance data was subsequently analyzed through univariate procedures. The performance data did not violate univariate assumptions of normality or homogeneity of variance.

4.3.2 Importance

The second research question addressed in this study was concerned with determining a significant difference in the perceived importance of each competency dimension as a result of training. The first 15 null hypotheses were associated with this research problem. Since there were no severe violations of the multivariate assumptions, *MANOVA* was deemed the appropriate statistical technique to assess the research question and test the related hypotheses. The results were interpreted for 3 three-way multivariate designs performed on the six dependent measures: Procedural, Fiscal, Conceptual, Communication, Health and Safety, and Facility Management. All non-significant results, for each design, are presented in Appendix I. The significance of the multivariate designs was tested using Pillais' trace, Hotelling's trace, and Wilks lambda multivariate significance statistics. Bisken (1983) recommends that as many significance tests as possible be computed and the consistency of the results be examined. Further, if the significance tests maintain consistency, any violations of assumptions did not affect robustness differentially.

Prior x Years x Position Design

The multivariate tests of significance failed to identify any significant second-order interactions, first-order interactions, and main effects at the $p < .10$ level. Furthermore, the univariate F-tests supported the finding of no significant 2 x 2 x 2 interaction or 2 x 2 interaction. Refer to Appendix I.8 to I.10 for the non-significant interactions. Since none of the multivariate and univariate interactions produced significant mean differences, it was possible to analyze the design for main effects. The univariate F-tests supported one significant years effect on Dimension 1, $F(1, 104) = 4.16$, $p<.10$, presented in Table 12. The group with more than 4 years experience on-the-job ($M = 3.48$) perceived Procedural competencies of higher importance than the group with less than 4 years on-the-job experience ($M = 3.16$). Thus, the null hypothesis that there is no significant difference in perceived importance as a result of on-the-job experience was rejected. There was insufficient evidence to reject the remaining null hypotheses.

Table 12: Importance - Prior x Years x Position Main Effects Univariate F-Tests

Variable	*DF*	*F*	Sig. of *F*
Position			
1.Procedural	1,104	.57	.45
2.Fiscal	1,104	.20	.66
3.Conceptual	1,104	.74	.39
4.Communication	1,104	.01	.94
5.Health & Safety	1,104	.26	.61
6.Facility Management	1,104	1.06	.31
Years			
1.Procedural	1,104	4.16	.04 *
2.Fiscal	1,104	1.13	.29
3.Conceptual	1,104	.35	.56
4.Communication	1,104	.03	.87
5.Health & Safety	1,104	.38	.54
6.Facility Management	1,104	.04	.83
Prior			
1.Procedural	1,104	.41	.52
2.Fiscal	1,104	.28	.60
3.Conceptual	1,104	.65	.42
4.Communication	1,104	.03	.87
5.Health & Safety	1,104	.20	.65
6.Facility Management	1,104	1.52	.22

* $p < .10$

Education x Years x Position Design

In the Education x Years x Position design, the multivariate test of significance failed to reject the null hypothesis of no significant difference at all levels of interaction and main effects, at the $p < .10$ level. The univariate F-tests also supported the finding of no significant Education x Years x Position interaction. In addition, univariate F-tests conducted on each dependent variable

supported the finding of no significant 2 x 2 interactions. Refer to Appendix I.11 to I.13 for these non-significant results. Univariate *F*-tests did, however, support two findings of significant main effects for years (Dimension 1) and education (Dimension 5), $F(1, 101) = 4.57$, $p<.10$, as shown in Table 13. The significant years effect was previously reported in the Prior x Years x Position design. For the education effect, the group with undergraduate level education ($M = 3.63$) perceived the importance of Health and Safety competencies higher than the group with graduate level education ($M = 3.30$). Therefore, the null hypotheses that there is no significant difference in perceived importance as a result of years experience on-the-job, and as a result of education were rejected. The remaining null hypotheses failed to be rejected due to insufficient evidence.

Specialization x Years x Position Design

Results of the multivariate tests of significance failed to identify any significant differences (a second-order interaction, first-order interactions, and main effects) at the $p < .10$ level in the Specialization x Years x Position design (refer to Appendix I.14). Univariate *F*-tests also supported the finding of no significant differences for a second-order interaction, first-order interactions, and main effects at the $p < .10$ level (refer to Appendix I.15). Thus, the results of the analysis failed to reject all null hypotheses for the Specialization x Years x Position design that there is no significant difference in perceived importance.

In summary, the results of the multivariate tests of significance for the three importance designs failed to identify any significant interactions or main effects at the $p < .10$ level. Univariate *F*-tests supported significant years (Dimension 1) and education (Dimension 5) effects at the $p < .10$ level.

Table 13: Importance - Education x Years x Position Main Effects Univariate F-Tests

Variable	DF	F	Sig. of F	
Position				
1.Procedural	1,101	.59	.44	
2.Fiscal	1,101	.08	.78	
3.Conceptual	1,101	1.05	.31	
4.Communication	1,101	.35	.56	
5.Health & Safety	1,101	.61	.44	
6.Facility Management	1,101	2.12	.15	
Years				
1.Procedural	1,101	4.57	.04	*
2.Fiscal	1,101	1.26	.26	
3.Conceptual	1,101	.41	.52	
4.Communication	1,101	.00	.95	
5.Health & Safety	1,101	.32	.58	
6.Facility Management	1,101	.05	.83	
Education				
1.Procedural	1,101	.97	.33	
2.Fiscal	1,101	.23	.63	
3.Conceptual	1,101	.11	.74	
4.Communication	1,101	1.47	.23	
5.Health & Safety	1,101	4.57	.04	*
6.Facility Management	1,101	.67	.42	

* $p < .10$

4.3.3 Performance

The third research question addressed in this study was related to determining a significant difference in the perceived performance of each competency dimension, as a result of training. The last 15 null hypotheses were associated with this research problem. Due to the severe reduction in cases (72%) when subjected to multivariate statistics, the performance data was subsequently analyzed through univariate procedures. The analysis of variance uses an *F* distribution

which assumes that the observations are drawn from a normal distribution, that the variances of the population are equal, and the dependent measures are independent of one another (Jamieson, 1980). The *ANOVA* assumptions were tested and no violations were evident. As a result, *ANOVA* was deemed the appropriate statistical technique to assess the research question and related hypotheses. The results were interpreted for 3 three-way univariate designs performed on each of the six dependent measures (Procedural, Fiscal, Conceptual, Communication, Health and Safety, and Facility Management) for a total of 18 *ANOVA* designs. The reader is referred to Appendix I for non-significant findings.

Prior x Years x Position Design

In the Prior x Years x Position design, significant differences were found among the training levels based on 4 of 6 dimensions at the $p < .10$ level. Of these, Dimension 1 showed a significant three-way interaction and main effect for years, presented in Table 14. Interaction refers to the joint effect of two or more factors on the dependent variable. The main effect, however, was not interpretable. Rothstein (1985) advises that main effects observed in the presence of interactions have little meaning, since the observed effect depends upon the particular level of another variable or variables. Thus, the presence of interactions preclude the interpretation of main effects. Likewise, the presence of higher-order interactions preclude the interpretation of lower-order interactions. In order to gain greater understanding of the significant interaction, as significance exists only at certain levels of each variable, the simple effects analysis was employed as the follow-up technique.

The simple effects technique involved one-way ANOVAs within the Prior x Years x Position interaction. Controlling for position and years, the results failed to identify any significant differences for prior based on Dimension 1 (refer to Appendix I.16). Controlling for position and prior one significant difference was found for years, $F(1, 15) = 6.11$, $p < .10$; presented in Table 15. The superordinates perceived administrators with prior administrative experience and more than 4 years on-the-job experience ($M = 3.93$) performed Procedural competencies better than

Table 14: Performance - Prior x Years x Position Univariate F-Tests for Dimension 1

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*	
Prior	.26	1	.26	.73	.40	
Years	1.29	1	1.29	3.62	.06	*
Position	.10	1	.10	.29	.60	
Prior x Years	.01	1	.01	.03	.87	
Prior x Position	.13	1	.13	.37	.55	
Years x Position	.74	1	.74	2.07	.16	
Prior x Years x Position	1.08	1	1.08	3.02	.09	*
Within Groups	21.08	59	.36			
Total	24.73	66	.38			

* $p < .10$

administrators with prior administrative experience and less than 4 years on-the-job experience ($M = 3.18$). In addition, controlling for years and prior, the results failed to identify any significant difference for position at the $p < .10$ level (refer to Appendix I.17). Thus, the null hypothesis that there is no significant difference in perceived performance as a result of a Prior x Years x Position. interaction was rejected for Dimension 1.

Dimension 2 revealed a significant main effect for prior, $F(1, 68) = 4.12$, $p<.10$, presented in Table 16. Administrators with prior administrative experience ($M = 3.55$) were perceived to have a better performance with respect to the Fiscal competencies than the administrators with no prior administrative experience ($M = 3.29$). The results of the analysis support the rejection of the null hypothesis of no significant difference in perceived performance as a result of prior experience for Dimension 2.

Dimension 3 revealed two significant interactions and one main effect at the $p < .10$ level, presented in Table 17. Since the main effect depends upon a particular level of another variable

Table 15: Performance - Simple Effects Analysis of Variance for Years x Dimension 1

Source of Variation	*DF*	Sum of Squares	Mean Squares	*F*	Sig. of *F*
(Position=1, Prior=1)					
Between	1	.01	.01	.02	.90
Within	27	9.66	.36		
Total	28	9.66			
(Position=2, Prior=1)					
Between	1	2.44	2.44	6.11	.03 *
Within	15	5.98	.40		
Total	16	8.41			
(Position=1, Prior=2)					
Between	1	.71	.71	1.97	.19
Within	9	3.25	.36		
Total	10	3.96			
(Position=2, Prior=2)					
Between	1	.06	.06	.21	.66
Within	8	2.21	.28		
Total	9	2.27			

Note.
Position: 1=Administrator, 2=Superordinate
Prior: 1=Admin. experience, 2=No admin. experience
* $p < .10$

or variables, it was not interpretable in the presence of a significant interaction. Similarly, Winer (1971) discusses the geometric fact why two-way interactions in a three-factor design are not distinguishable from one another. Therefore, the null hypotheses of first-order interactions and years effect were neither accepted or rejected.

Analysis of Dimension 4 revealed a significant Prior x Position interaction, $F(1, 88) = 6.92$, $p<.10$, presented in Table 18. A follow-up technique was employed through an analysis of simple effects to gain a more precise understanding of the significant two-way interaction.

Table 16: Performance - Prior x Years x Position Univariate F-Tests for Dimension 2

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Prior	1.55	1	1.55	4.12	.05 *
Years	.92	1	.92	2.45	.12
Position	.03	1	.03	.07	.79
Prior x Years	.02	1	.02	.05	.82
Prior x Position	.03	1	.03	.08	.78
Years x Position	.03	1	.03	.08	.79
Prior x Years x Position	.76	1	.76	2.03	.16
Within Groups	25.63	68	.38		
Total	28.50	75	.38		

* $p < .10$

Table 17: Performance - Prior x Years x Position Univariate F-Tests for Dimension 3

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Prior	1.11	1	1.11	2.22	.14
Years	1.49	1	1.49	2.98	.09 *
Position	.17	1	.17	.34	.56
Prior x Years	1.61	1	1.61	3.23	.08 *
Prior x Position	3.37	1	3.37	6.77	.01 *
Years x Position	.51	1	.51	1.01	.32
Prior x Years x Position	1.24	1	1.24	2.48	.12
Within Groups	48.35	97	.50		
Total	57.09	104	.55		

* $p < .10$

Controlling for prior experience in the analysis of simple effects, a significant position effect

Table 18: Performance - Prior x Years x Position Univariate F-Tests for Dimension 4

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Prior	.32	1	.32	.96	.33
Years	.02	1	.02	.07	.79
Position	.54	1	.54	1.63	.21
Prior x Years	.29	1	.29	.87	.36
Prior x Position	2.28	1	2.28	6.92	.01 *
Years x Position	.01	1	.01	.04	.84
Prior x Years x Position	.13	1	.13	.39	.53
Within Groups	29.02	88	.33		
Total	32.95	95	.35		

* $p < .10$

was identified, $F(1, 32) = 7.92$, $p<.10$, presented in Table 19. The superordinates perceived administrators with no prior administrative experience ($M = 3.82$) to have a higher performance in Communication competencies than the administrators with no prior administrative experience self-perception of performance in this area ($M = 3.21$). Controlling for position, a significant prior effect was revealed, $F(1, 57) = 7.76$, $p<.10$, presented in Table 20. Administrators with prior administrative experience ($M = 3.61$) perceived a higher rating of performance in the Communication competencies than administrators with no prior administrative experience ($M = 3.21$). The results of the analysis support the rejection of the null hypothesis that there is no significant difference in perceived performance as a result of a first-order (Prior x Position) interaction for Dimension 4.

Analysis of Dimensions 5 and 6 failed to identify any significant differences at the $p < .10$ level (refer to Appendixes I.18 and I.19, respectively). As a result, the null hypotheses of no significant difference in perceived performance based on a Prior x Years x Position interaction were retained for Dimensions 5 and 6.

Table 19: Performance - Simple Effects Analysis of Variance for Position x Dimension 4

Source of Variation	DF	Sum of Squares	Mean Squares	F	Sig. of F
(Prior=1)					
Between	1	.14	.14	.49	.49
Within	60	17.16	.29		
Total	61	17.30			
(Prior=2)					
Between	1	3.05	3.05	7.92	.01 *
Within	32	12.34	.39		
Total	33	15.39			

Note.
Prior: 1=Admin. experience, 2=No admin. experience
*** p <.10**

Table 20: Performance - Simple Effects Analysis of Variance for Prior x Dimension 4

Source of Variation	DF	Sum of Squares	Mean Squares	F	Sig. of F
(Position=1)					
Between	1	2.08	2.08	7.76	.01 *
Within	57	15.26	.27		
Total	58	17.34			
(Position=2)					
Between	1	.84	.84	2.06	.16
Within	35	14.24	.41		
Total	36	15.08			

Note.
Position: 1=Administrator, 2=Superordinate
*** p <.10**

Education x Years x Position Design

Significant differences were found among the training levels in the Education x Years x Position design based on 2 of 6 dimensions at the $p < .10$ level. A significant Years x Position interaction was revealed for Dimension 1 in the absence of any significant main effects, shown in Table 21.

Table 21: Performance - Education x Years x Position Univariate F-Tests for Dimension 1

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*	
Education	.46	1	.46	1.37	.25	
Years	.91	1	.91	2.74	.10	
Position	.03	1	.03	.09	.77	
Education x Years	.00	1	.00	.00	.95	
Education x Position	.47	1	.47	1.40	.24	
Years x Position	1.08	1	1.08	3.25	.08	*
Education x Years x Position	.24	1	.24	.73	.40	
Within Groups	19.29	58	.33			
Total	22.59	65	.35			

* $p < .10$

The simple effects analysis of the Years x Position interaction for Dimension 1, identified a significant years effect, $F(1, 25) = 5.86$, $p<.10$, when controlled for position. The results are presented in Table 22. The superordinates perceived administrators with more than 4 years on-the-job experience ($M = 3.83$) performed Procedural competencies better than administrators with less than 4 years on-the-job experience ($M = 3.27$). The simple effects analysis failed to identify any significant differences for position (refer to Appendix I.20). The results support the rejection of the null hypothesis of no significant difference in perceived performance as a result of a first-order (Years x Position) interaction for Dimension 1.

Table 22: Performance - Simple Effects Analysis of Variance for Years x Dimension 1

Source of Variation	DF	Sum of Squares	Mean Squares	F	Sig. of F
(Position=1)					
Between	1	.04	.04	.11	.74
Within	38	13.86	.36		
Total	39	13.90			
(Position=2)					
Between	1	2.03	2.03	5.86	.02 *
Within	25	8.68	.35		
Total	26	10.71			

Note.
Position: 1=Administrator, 2=Superordinate
* $p < .10$

The analysis for Dimension 3 revealed a significant Education x Years interaction and a significant education effect, at the $p < .10$ level (shown in Table 23). The interaction precluded the interpretation of the main effect, and therefore, the main effect was not interpreted. The interaction was further analyzed through the simple effects technique. No significant differences were identified for Dimensions 2, 4, 5, and 6 at the $p < .10$ level. The non-significant results appear in Appendixes I.21 to I.24.

Further analysis of the Education x Years interaction revealed a significant education effect based on Dimension 3, $F(1, 47) = 8.45$, $p < .10$. The results are shown in Table 24. The group with less than 4 years on-the-job experience and graduate level education ($M = 4.03$) were perceived to perform Conceptual competencies better than the group with less than 4 years on-the-job experience with undergraduate level education ($M = 3.39$). The simple effects analysis for years failed to identify any significant differences at the $p < .10$ level (refer to Appendix I.25). The results of the analysis support the rejection of the null hypothesis that there is no significant

Table 23: Performance - Education x Years x Position Univariate F-Tests for Dimension 3

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Education	2.43	1	2.43	4.86	.03 *
Years	.20	1	.20	.39	.53
Position	.24	1	.24	.49	.49
Education x Years	1.54	1	1.54	3.08	.08 *
Education x Position	.10	1	.10	.20	.66
Years x Position	.01	1	.01	.01	.92
Education x Years x Position	.02	1	.02	.04	.84
Within Groups	47.58	95	.50		
Total	52.56	102	.52		

* $p < .10$

difference in perceived performance as a result of first-order (Education x Years) interaction for Dimension 3.

Specialization x Years x Position Design

In the Specialization x Years x Position design, 1 of 6 dimensions revealed significant differences at the $p < .10$ level. In Dimension 1, a Specialization x Position interaction and a Years x Position interaction were significant. In addition, a years effect was also identified at the $p < .10$ level. The significant results are presented in Table 25. However, since the main effect was precluded by the significant 2 x 2 interaction, and the two interactions were not distinguishable from one another, further interpretation of the results was not possible. The null hypotheses were neither accepted or rejected in these cases.

No significant differences were revealed for Dimensions 2 through 6 at the $p < .10$ level. The non-significant results appear in Appendixes I.26 to I.30.

Table 24: Performance - Simple Effects Analysis of Variance for Education x Dimension 3

Source of Variation	DF	Sum of Squares	Mean Squares	F	Sig. of F
(*Years=1*)					
Between	1	3.87	3.87	8.45	.01 *
Within	47	21.55	.46		
Total	48	25.42			
(*Years=2*)					
Between	1	.11	.11	.21	.65
Within	52	26.48	.51		
Total	53	26.59			

Note.
Years: 1= ≤4 years on-the-job, 2= >4 years on-the-job
* $p < .10$

Table 25: Performance - Specialization x Years x Position Univariate F-Tests for Dimension 1

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Specialization	.95	2	.48	1.40	.26
Years	1.05	1	1.05	3.09	.08 *
Position	.10	1	.10	.30	.59
Specialization x Years	.96	2	.48	1.40	.25
Specialization x Position	1.75	2	.88	2.58	.09 *
Years x Position	1.09	1	1.09	3.20	.08 *
Specialization x Years x Position	.09	2	.05	.14	.87
Within Groups	18.71	55	.34		
Total	24.73	66	.38		

* $p < .10$

In summary, the results of the univariate *F*-tests for the Prior x Years x Position design supported the rejection of the null hypothesis that there is no significant difference in perceived performance as a result of a prior experience effect (Dimension 2), Prior x Years x Position interaction (Dimension 1), and Prior x Position interactions (Dimension 4). The null hypothesis for years effect (Dimensions 1 and 3), Prior x Years (Dimension 3), and Prior x Position (Dimension 3) were neither accepted or rejected. Analysis of the Education x Years x Position design identified two significant first-order interactions: Years x Position (Dimension 1) and Education x Years (Dimension 3). The null hypothesis for the education effect (Dimension 3) was neither accepted nor rejected. Univariate *F*-tests of the Specialization x Years x Position design failed to identify any interpretable interactions or main effects. The null hypotheses, however, were neither accepted or rejected for Specialization x Position (Dimension 1), Years x Position (Dimension 1) interactions, and years effect (Dimension 1) in this design.

4.4 Competency Assessment

The fourth research question addressed in this study was concerned with the placement of competency dimensions for significantly different groups into the Quadrant Assessment Model (QAM). Data for the overall group and each significantly different group is presented in the following format:

1. The mean score for the Importance profile and Performance profile is discussed.
2. A QAM profile is presented based upon the perceptions of the group.
3. A comparison of the groups is made based on the placement of the significantly different dimension.

The comparison of groups is made in order to answer the fifth and last research questions to determine what training is effective in meeting the demands of the profession. The comparisons are primarily based on a match between importance and performance resulting in Quadrant 1 or 3 placement or a discrepancy/need resulting in Quadrant 2 or 4 placement. Groups with matched high importance and high performance are considered to have competency attainment and effec-

tively meeting the demands of the profession in the specified competency dimension over groups with areas of discrepancy or need. The analysis of variance results identified eight sets of groups for which QAM profiles were established for comparison purposes.

Overall Group

Before the significant findings are compared, a QAM profile for the overall respondent group is presented. The Importance and Performance means were used as the decision points to determine relative High-Low values for use in the placement of competency dimensions into the quadrants. The mean score for the Importance profile was 3.44 which indicated the respondents, as a group, perceived the competency dimensions as relatively important. The mean score for the Performance profile was 3.52 which indicated the respondents perceived the performance in the dimensions to be relatively competent. The Performance mean was slightly higher than the Importance mean, which indicates that, on the whole, the competencies may have been over-emphasized in practice in relation to the importance.

The Quadrant Assessment profile for the overall respondent group is presented in Table 26. The dimensions were equally distributed in 3 of 4 quadrants. The respondents perceived Dimension 3 and 4 as being representative of Quadrant 1. Dimensions 2 and 5 were placed in Quadrant 2, while Dimensions 1 and 6 were representative of Quadrant 4. The results indicate that the respondent group has attained Conceptual and Communication competencies within the role as recreational sport administrator. The performance in the Procedural and Facility Management competencies are over-emphasized according to the relatively low importance perceived in these competencies. Areas of need are identified in the Fiscal, and Health and Safety competencies for recreational sport administrators.

QAM x Years

Administrators with less than 4 years on-the-job experience had a mean score of 3.41 for the Importance profile, while the mean score for the Performance profile was 3.43. The similar mean

Table 26: Quadrant Assessment Profile for the Overall Respondent Group

Dimension	Quadrant	Importance Z	Performance Z
1.Procedural	4	-.38	.44
2.Fiscal	2	.12	-.38
3.Conceptual	1	.69	1.25
4.Communication	1	1.07	.24
5.Health & Safety	2	.28	-1.74
6.Facility Management	4	-1.78	.21

scores indicate that the administrators perceived competencies were performed according to the level of importance.

Administrators with more than 4 years experience on-the-job had a mean score of 3.44 for the Importance profile and a mean score of 3.58 for the Performance profile. The findings indicate that this group of administrators perceived the dimensions as relatively important, as well as perceiving themselves as being relatively competent in the performance of the competencies.

The Quadrant Assessment profiles for the significantly different groups based on Years are presented in Table 27. The groups were distinguished on the placement of Dimension 1. The group with less than 4 years experience on-the-job perceived Dimension 1 as being representative of Quadrant 3.

The group with over 4 years experience on-the-job perceived Dimension 1 as belonging to Quadrant 1. The placement of competencies indicates that the group with over 4 years in the position perceived Procedural competencies to be competently performed according to their relative importance.

Since the significant difference of the years effect was based on Dimension 1, it would appear from the quadrant placement of this dimension that even though the group with over 4 years experience on-the-job is competently meeting the Procedural competencies, the group with

Table 27: Quadrant Assessment Profiles Based on Years Effect

Dimension	Quadrant	Importance Z	Performance Z
Years=1			
1.Procedural	3	-.73	-.27
2.Fiscal	2	.62	-.53
3.Conceptual	1	.63	1.21
4.Communication	1	.98	1.15
5.Health & Safety	2	.15	-1.35
6.Facility Management	3	-1.65	-.19
Years=2			
1.Procedural	1	.13	.70
2.Fiscal	3	-.55	-.27
3.Conceptual	1	.68	1.13
4.Communication	2	1.03	-.25
5.Health & Safety	2	.45	-1.70
6.Facility Management	4	-1.72	.42

Note.
Years: 1= ≤4 years on-the-job, 2= >4 years on-the-job

less than 4 years on-the-job experience did not perceive this dimension of relatively high importance. Therefore, the quadrant assessment did not substantiate that one group is more effective than the other groups in meeting the perceived demands of the postion in this competency dimension.

QAM x Education

The group which represented administrators with undergraduate level education had a mean score of 3.49 for the Importance profile. The mean score for the Performance profile was 3.48. The similar mean scores indicate that the group perceived the competencies were performed according to their level of importance.

The group representing administrators with graduate level education had a mean score of 3.34 for the Importance profile and a mean score of 3.58 for the Performance profile. The mean scores indicate that the group perceives the competencies to be of relative importance and perceives the performance of these competencies to be relatively competent.

The Quadrant Assessment profiles based on education are presented in Table 28. The group with undergraduate level education had competencies evenly distributed in 3 of 4 quadrants. Dimension 5 was perceived of relatively high importance and placed in Quadrant 2. Although the group perceived Health and Safety competencies to be of relatively high importance, a need for further training in this area was indicated by the perceived relative low performance.

Table 28: Quadrant Assessment Profiles Based on Education Effect

Dimension	Quadrant	Importance *Z*	Performance *Z*
Education=1			
1.Procedural	4	-.39	1.35
2.Fiscal	2	.07	-.98
3.Conceptual	1	.42	.42
4.Communication	1	1.19	.38
5.Health & Safety	2	.46	-1.38
6.Facility Management	4	-1.75	.21
Education=2			
1.Procedural	3	-.35	-.56
2.Fiscal	1	-.42	.13
3.Conceptual	1	.99	1.68
4.Communication	1	.81	.13
5.Health & Safety	3	-.12	-1.34
6.Facility Management	3	-1.75	-.05

Note.
Education: 1=Undergraduate level, 2=Graduate level

The group with graduate level education had competencies evenly distributed in 2 of 4 quadrants. Dimension 5 was placed in Quadrant 3. The placement of competencies, for this group, indicates that perceptions of low importance and performance were matched, alleviating areas of discrepancy.

Based on the findings of the competency placement for Dimension 5, although the group with undergraduate level education perceived Health and Safety competencies significantly more important than the other group, their performance was perceived relatively lower than importance, indicating an area of discrepancy. However, since the group with graduate level education perceived Health and Safety competencies of relatively low importance, one group cannot be considered more effective than the other in meeting the demands of these competencies.

QAM x Prior

The analysis of variance findings revealed a significant difference between groups based on prior experience in Dimension 2. The group with no prior administrative experience had a perceived mean score of 3.40 for the Importance profile. The Performance profile had a mean score of 3.53. The group perceived the competencies to be relatively important, while the performance of the competencies was relatively competent in accordance with the degree of importance.

The group with no prior administrative experience had a perceived mean score of 3.48 for the Importance profile. The mean score of the Performance profile was 3.48. The similarity of profile mean scores indicate the group perceived no discrepancy between the level of importance and performance for the competencies.

The Quadrant Assessment profiles based on prior experience are presented in **Table** 29. The group with prior administrative experience perceived Dimension 2 as representative of Quadrant 1. This quadrant placement indicates that the group had competency attainment of the Fiscal dimension and was effectively meeting the demands of these competencies in the role as recreational sport administrator. The group with no prior administrative experience perceived Dimension 2 as representative of Quadrant 3 in accordance with the match of relatively low importance and performance.

Table 29: Quadrant Assessment Profiles Based on Prior Effect

Dimension	Quadrant	Importance Z	Performance Z
Prior=1			
1.Procedural	4	-.45	.38
2.Fiscal	1	.21	.18
3.Conceptual	1	.78	1.32
4.Communication	1	1.00	.39
5.Health & Safety	2	.21	-1.58
6.Facility Management	3	-1.75	-.69
Prior=2			
1.Procedural	4	-.16	.17
2.Fiscal	3	-.18	-1.26
3.Conceptual	1	.32	.44
4.Communication	2	1.18	-.14
5.Health & Safety	2	.60	-.78
6.Facility Management	4	-1.75	1.59

Note.
Prior: 1=Admin. experience, 2=No admin. experience

The significant difference between the two groups was based on Dimension 2. A comparison of the placement for this dimension reveals that although there was a significant difference in performance, one group is not more effective than the other in this area due to perceived importance of the Fiscal competencies. Upon closer examination of the quadrants both groups performed the Fiscal competencies according to the perceived importance. Therefore, the performance difference was not substantiated in light of perceived importance. Both groups were considered effectively meeting the demands of the position with respect to Fiscal competencies.

QAM x Years x Position

The analysis of variance findings revealed a significant difference between groups based on Years x Position in Dimension 1. The superordinates perceived administrators with less than 4

years on-the-job experience had a mean score of 3.35 for the Importance profile. The mean score of the Performance profile was 3.43. The superordinates perceived this group to have a higher performance than the perceived level of importance for the competencies.

The superordinates' perceptions of administrators with more than 4 years on-the-job experience had a mean score of 3.64 for the Importance profile. The Performance profile had a mean score of 3.68. The mean scores indicate that the superordinates of administrators with over 4 years experience on-the-job perceived the competencies to be relatively important and perceived their performance in these areas to be competent.

The Quadrant Assessment profiles based on Years x Position are presented in Table 30. The group in the position less than 4 years, according to superordinate perceptions, had Dimension 1 placed in Quadrant 3. Procedural competencies were matched with relative low priority and low performance.

The group with over 4 years experience in the position, had 3 of 6 dimensions placed in Quadrant 1, according to the perceptions of the superordinates. This quadrant placement indicates that Dimension 1 was perceived as competently attained. A comparison of the two groups based on the placement of Procedural competencies reveals that both groups matched performance with the level of importance. Therefore, upon closer examination of the findings, one group was not considered more effective than the other, since both groups were meeting the demands of the position based on the relative importance of these competencies.

QAM x Education x Years

The findings of the analysis of variance revealed a significant difference between groups based on an Education x Years interaction in Dimension 3. The group in the position less than 4 years and with undergraduate level education had a perceived mean score of 3.47 for the Importance profile, indicating relative importance. The mean score on the Performance profile was 3.39. The group perceived the performance of the competencies to be slightly lower than the importance.

Table 30: Quadrant Assessment Profiles Based on Years x Position Interaction

Dimension	Quadrant	Importance Z	Performance Z
Superordinates			
Years=1			
1.Procedural	3	-.95	-1.07
2.Fiscal	2	.23	-.32
3.Conceptual	1	.99	1.15
4.Communication	1	.87	.79
5.Health & Safety	2	.35	-1.18
6.Facility Management	4	-1.48	.64
Years=2			
1.Procedural	1	.30	1.24
2.Fiscal	3	-.60	-.87
3.Conceptual	1	.32	.62
4.Communication	1	1.26	.04
5.Health & Safety	2	.38	-1.47
6.Facility Management	4	-1.65	.44

Note.
Years: 1= ≤4 years on-the-job, 2= >4 years on-the-job

The group in the position less than 4 years, but with graduate level education had a mean score of 3.36 for the Importance profile. The mean score of the Performance profile was 3.62. The mean performance score indicates that the group perceived performance to be relatively competent in the dimensions.

The Quadrant Assessment profiles based on Education x Years are presented in Table 31. The group in the position less than 4 years with undergraduate level education had Dimension 3 placed in Quadrant 2. The group perceived these competencies to be relatively important, but the perceived performance did not match the importance, indicating a discrepancy or area of need for further training. The group in the position less than 4 years, but with graduate level education had Dimension 3 placed in Quadrant 1. This quadrant placement indicates that the group had

competency attainment of the Conceptual dimension. A comparison of the two groups, based on placement of Dimension 3, reveals that the group in the position less than 4 years with graduate level education was more effective in the performance of Conceptual competencies than the group in the position less than 4 years, but with undergraduate level training.

Table 31: Quadrant Assessment Profiles Based on Education x Years Interaction

Dimension	Quadrant	Importance *Z*	Performance *Z*
≤ 4 Years			
Education=1			
1.Procedural	4	-.55	1.40
2.Fiscal	2	.49	-.74
3.Conceptual	2	.44	-.01
4.Communication	1	1.13	.94
5.Health & Safety	2	.21	-1.22
6.Facility Management	3	-1.72	-.33
Education=2			
1.Procedural	3	-1.10	-1.24
2.Fiscal	2	.94	-.45
3.Conceptual	1	1.03	1.61
4.Communication	1	.53	.70
5.Health & Safety	3	-.16	-.28
6.Facility Management	3	-1.24	-.35

Note.
Education: 1=Undergraduate level, 2=Graduate level

QAM x Prior x Position

The analysis of variance univariate *F*-tests identified a significant Prior x Position interaction on Dimension 4. The results of the simple effects analysis further revealed two significant effects within this interaction. The position effect is presented first, followed by the prior effect.

The administrators with no prior administrative experience had a mean score of 3.42 on the Importance profile. A mean score of 3.33 was calculated on the Performance profile, based on

the group's perceptions. The scores indicate the group perceived the competencies to be of relative importance and competently performed.

The superordinates' perceptions of administrators with no prior administrative experience had a mean score of 3.57 on the Importance profile. The Performance profile had a mean score of 3.69. The scores indicate the superordinates perceived the competencies to be relatively important and performance to be relatively competent.

The Quadrant Assessment profiles based on Prior x Position, position effect are presented in Table 32. The administrators with no prior administrative experience had Dimension 4 placed in Quadrant 2. The relatively high importance and low performance indicate an area of discrepancy or need for further training. Dimension 4, perceived by superordinates of administrators with no prior administrative experience was placed in Quadrant 1. The quadrant assessment indicates that the group perceived the administrators' competency attainment matched the relative high importance. A comparison of the administrator and superordinate perceptions indicates that the superordinates perceived their administrators with no prior administrative experience were effectively meeting the Communication competencies.

The prior effect, within the Prior x Position interaction was significant for administrators on Dimension 4. Administrators with prior administrative experience had a mean score of 3.36 for the Importance profile. The Performance profile for this group had a mean score of 3.53. The mean scores indicate the administrators with prior administrative experience perceived the competencies to be relatively important and performed relatively competently.

The other group of administrators with no prior administrative experience, previously analyzed, had a mean score of 3.42 for the Importance profile and a mean score of 3.33 for the Performance profile. The profile mean scores indicate that while the competencies were of relative importance, the perceived performance was closely matched to this level.

The Quadrant Assessment profiles based on Prior x Position, prior effect are presented in Table 33. The quadrant assessment placed Dimension 4, perceived by administrators with prior

Table 32: Quadrant Assessment Profiles Based on Prior x Position (Position Effect)

Dimension	Quadrant	Importance *Z*	Performance *Z*
No admin. experience			
Position=1			
1.Procedural	1	.16	.48
2.Fiscal	3	-.75	-.39
3.Conceptual	2	.20	-.10
4.Communication	2	1.33	-1.08
5.Health & Safety	2	.58	-.64
6.Facility Management	4	-1.51	1.75
Position=2			
1.Procedural	3	-.45	-.16
2.Fiscal	2	.62	-1.41
3.Conceptual	1	.52	.57
4.Communication	1	.75	.45
5.Health & Safety	2	.40	-.80
6.Facility Management	4	-1.85	1.35

Note.
Position: 1=Administrators, 2=Superordinates

administrative experience, in Quadrant 1. Competencies in this quadrant indicate the best match between importance and performance. Administrators with no prior administrative experience, had Dimension 4 placed in Quadrant 2. Although the group perceived the Communication competencies of relative importance, the level of performance indicated further training was desirable in this area. A comparison of the two groups based on the placement of Dimension 4 in the quadrants indicates that administrators with prior administrative experience perform Communication competencies more effectively than the administrators with no prior administrative experience.

Table 33: Quadrant Assessment Profiles Based on Prior x Position (Prior Effect)

Dimension	Quadrant	Importance *Z*	Performance *Z*
Administrators			
Prior=1			
1.Procedural	4	-.48	.26
2.Fiscal	2	.48	-.11
3.Conceptual	1	.75	1.46
4.Communication	1	.87	.53
5.Health & Safety	2	.16	-1.39
6.Facility Management	3	-1.79	-.74
Prior=2			
1.Procedural	1	.16	.48
2.Fiscal	3	-.75	-.39
3.Conceptual	2	.20	-.10
4.Communication	2	1.33	-1.08
5.Health & Safety	2	.58	-.64
6.Facility Management	4	-1.51	1.75

Note.
Prior: 1=Admin. experience, 2=No admin. experience

QAM x Prior x Years x Position

The analysis of variance findings revealed a Prior x Years x Position interaction on Dimension 1. The simple effects analysis further identified a years effect within the interaction. The superordinates of administrators with prior administrative experience and in the position less than 4 years had a mean score of 3.33 for the Importance profile. The mean score of the Performance profile was 3.36. The scores indicate that the competency dimensions were of relative importance and were performed with relative competence.

The superordinates of administrators with prior administrative experience, with more than 4 years experience on-the-job, had a mean score of 3.62 for the Importance profile. The same

group had a mean score of 3.65 for the Performance profile. The mean scores of both profiles indicate a close match of relative importance and competent performance of the dimensions.

The Quadrant Assessment profiles based on Prior x Years x Position are presented in Table 34. Dimension 1, as perceived by the group with less than 4 years on-the-job experience was placed in Quadrant 3. The relative low importance perceived for the Procedural competencies by this group matched the relative low performance. The group with more than 4 years experience on-the-job had Dimension 1 placed in Quadrant 1. The relative high importance matched the relative competent performance. A comparison of the groups based on the significant difference of Dimension 1 reveals, upon closer examination, no apparent difference. Since both groups match perceived importance of the Procedural competencies with the perceived performance, one group does not meet the expectations of the job more effectively than the other group on the basis of Procedural competencies.

In this section, the analysis of variance results identified eight sets of significantly different groups for which QAM profiles were established for comparison purposes. The results of the Quadrant Assessment support three of eight significant groups as effectively meeting the demands of the profession when the importance and performance of the competencies are examined together. The findings reveal:

1. Administrators in the position less than 4 years, but with graduate level education, are effectively meeting the demands of the position regarding Conceptual competencies.
2. Superordinates perceive their administrators with no prior administrative experience are effectively meeting the demands of the Communication competencies.
3. Administrators with prior administrative experience perceive they are effectively meeting the demands of the position with respect to Communication competencies.

Table 34: Quadrant Assessment Profiles Based on Prior x Years x Position Interaction

Dimension	Quadrant	Importance *Z*	Performance *Z*
SUPERORDINATES			
Admin. Experience			
Years=1			
1.Procedural	3	-.90	-1.45
2.Fiscal	4	-.05	.02
3.Conceptual	1	1.02	1.23
4.Communication	1	.94	.93
5.Health & Safety	2	.43	-.72
6.Facility Management	3	-1.44	-.02
Years=2			
1.Procedural	1	.60	1.44
2.Fiscal	4	-1.28	.89
3.Conceptual	2	.21	-.05
4.Communication	2	1.36	-.54
5.Health & Safety	2	.14	-1.26
6.Facility Management	3	-1.04	-.47

Note.
Years: 1= ≤4 years on-the-job, 2= >4 years on-the-job

4.5 Summary

The response rate to the field study was 48.7%. The sample consisted of 72 (63.2%) recreational sport administrators and 42 (36.8%) superordinates from Canadian colleges and universities. The overall group had a mean importance score of 3.35 on the 93 items listed in the "*Management Competency and Training Questionnaire*". The mean performance score was 3.36.

In an attempt to maximize the reliabilities and validity of homogeneous groupings of competencies, with as few variables as possible, the data was factor analyzed. Employing the principal components with iterations and varimax rotation, a six-factor solution was selected as a valid and reliable measure of both competency importance and performance. The six dimensions represent

30 items in the areas of Procedural, Fiscal, Conceptual Communication, Health and Safety, and Facility Management.

The factorial designs were tested for the *ANOVA* and *MANOVA* assumptions and severe violations were not detected. Three importance designs were analyzed through *MANOVA* procedures and the results failed to identify any significant multivariate differences. Univariate *F*-tests, however, identified two significant effects for Dimensions 1 and 5. A summary of the findings is presented in Table 35.

Table 35: Importance - Rejected Null Hypotheses

Dimension	Null Hypotheses*
1	Ho6: There will be no significant difference in the perceived importance of each competency dimension as a result of years on-the-job.
5	Ho11: There will be no significant difference in the perceived importance of each competency dimension as a result of education.

Note.
Dimensions are as follows:
1.Procedural 4.Communication
2.Fiscal 5.Health & Safety
3.Conceptual 6.Facility Management
* $p < .10$

Three performance designs were analyzed univariately through *ANOVA* procedures. Significant interactions and a main effect were identified in the Prior x Years x Position design. In addition, significant two-way interactions were revealed in the Education x Years x Position design. Significant interactions and a main effect detected in the Specialization x Years x Position analysis were non-interpretable. A summary of the findings is presented in Table 36.

Table 36: Performance - Rejected Null Hypotheses

Dimension	Null Hypotheses*
1	**Ho16:** There will be no significant difference in the perceived performance of each competency dimension as a result of a *Prior* experience x *Years* on-the-job x *Position* interaction.
4	**Ho18:** There will be no significant difference in the perceived performance of each competency dimension as a result of a *Prior* experience x *Position* interaction.
1	**Ho19:** There will be no significant difference in the perceived performance of each competency dimension as a result of a *Years* on-the-job x *Position* interaction.
2	**Ho20:** There will be no significant difference in the perceived performance of each competency dimension as a result of *prior* experience.
3	**Ho24:** There will be no significant difference in the perceived performance of each competency dimension as a result of an *Education x Years* on-the-job interaction.

Note.
Dimensions are as follows:

1.Procedural	4.Communication
2.Fiscal	5.Health & Safety
3.Conceptual	6.Facility Management

* $p < .10$

Through the application of the QAM, the groups identified as significantly different in the analysis of variance were further analyzed. When the importance and performance measures were jointly analyzed the QAM supported three significant groups as effectively meeting the high priority demands of the profession, based on the placement of competency dimensions in Quadrant 1.

Chapter V

DISCUSSION OF RESULTS

Human behaviour is complicated by a large number of determining variables acting independently and in interaction (Ary et al., 1985). A primary criticism of management studies, however, "is the typical lack of control over the variables that require consideration", as noted by Parkhouse, Ulrich, and Soucie (1982, p. 180). Because of the lack of control in ex post facto research, it is hazardous to infer causality. The purpose of this section is to discuss the results in light of the research questions, shortcomings, and existing research.

5.1 Training Experiences

Since the focus of this study is on recreational sport administrators in educational institutions of higher learning, the background training experiences of the participants are considered important. The survey results show that the majority of responses represented administrators with undergraduate level education (63.7%). Responses representing administrators with graduate level education accounted for 33.6% of the sample, while only 2.7% represented administrators with some other level of education or no formal training. This finding indicates that, in general, recreational sport administrators have formal training in some higher education program, as evidenced by the few administrators without formal training. This finding also supports a commitment to employ professionally trained personnel in educational settings. The incidence of graduate level education may reflect the qualifications within the university setting which may be required for secondary responsibilities, such as teaching. In addition, graduate level education may reflect desired qualifications within larger recreational sport departments with many administrative levels.

With regard to the area of specialization, the largest number of responses represented administrators with only some formal course work relating to administration (51.3%). This finding indicates that administrators have not been formally trained for a primary role in sport administration as postulated by VanderZwaag (1978). Considering the relatively recent surge in "sport management" (Parkhouse, 1987), a surprising 31.0% of the responses were represented by administrators trained with a major relating to administration. The high numbers in this category, however, may be explained by the grouping of responses involving major areas of study in recreation administration, physical education administration, human kinetics administration, and business administration. Within the 31% in this category, only 8.6% specifically had a major in sport administration. Physical education administration was the most prominent major area of study in administration (45.7%). The finding reflects the relative newness of the "sport management" degree as noted by Parkhouse (1987). Of the responses, 17.7% represented administrators with little to no formal administration course work. This data indicates that responsibility for the development of administrative competency was left to the "trial and error" approach in on-the-job experience, prior administrative job experience, or such other methods as seminars, workshops, and conferences. Although only 31% of the sample represented administrators trained for a primary role in recreational/sport administration, a majority of the administrators have been trained in a higher education program. This finding indicates that the primary qualification for a recreational sport administration position is not necessarily administration related, but rather related to the disciplines of physical activity.

In terms of prior administrative experience, 37.2% of the responses represented administrators with no prior administrative experience. If administrators, when hired, are expected to be competent in important dimensions of the job, this data appears to be in contrast with Livingston's (1971) argument that some competencies are best developed outside of the classroom. This argument also gives support to the importance of internship/field work experiences as noted in previous studies (Parkhouse, 1987; Parks & Quain, 1986).

Finally the number of years experience on-the-job was equally represented by responses in both categories of less than 4 years and over 4 years experience. This finding seems to reflect stability for some administrators in the field. The lengthy duration in the job may also reflect a natural growth and development cycle within the job which has created a "newness" reflected in increased and changing job responsibilities. Since this study investigated a single point in time, it is difficult to determine whether responses representing administrators in the position less than 4 years reflect a trend of growth in the field or high turnover due to advancement or negative job effects, such as stress, burn-out or job dissatisfaction.

5.2 Importance and Performance Ratings

The fact that respondents perceived all competency items as relatively important is not surprising considering the items were pilot-tested, as well as drawn from a previous study (Jamieson, 1980) where, in both cases, items of low importance were excluded. The fact that Jamieson's findings identified competencies of importance specific to management levels is of interest. Data from this study suggests either a conflict with Jamieson's findings relating to the top management competencies, or the top level administrator position of recreational sport departments in Canadian colleges and universities is not consistently comparable to the top level position in Jamieson's study. The lack of uniformity, with respect to sport job titles and departmental structures found in the CIRA Post-Secondary Survey (1984), may explain the discrepancy with Jamieson's top management competencies. Since this present study did not control for department and institution size, it is likely that recreational sport administrators in Canadian colleges and universities occupy positions which encompass responsibilities at more than the top management level. This notion would be consistent with Reno's (1964) findings that size of college enrollment influences the uniformity of job responsibilities. The overall results of the importance of competencies associated with recreational sport administrators may define some parameters for the training of these administrators.

The respondents perceived performance as relatively knowledgeable in all of the competency items. This finding is consistent with Kunstler's (1980) results that respondents self-rated their performance as proficient in all of the competencies. The fact that this study included the perceptions of the superordinates reduces the bias inherent in self-ratings. The overall results of the performance ratings of competencies may define areas of needed training based on weak performance.

5.3 Competency Dimensions

In order to determine a homogeneous grouping of competencies providing a valid and reliable scale for both competency importance and performance, a comparison of the a priori and empirically derived dimensions was conducted. The fact that Jamieson's (1980) 12 a priori dimensions provided an acceptable reliability and validity for competency importance is not surprising, since the instrument was originally designed as a measure of competency importance. The low validity of competency performance, however, indicated a margin for improvement among the homogeneous groupings.

In an attempt to maximize the validity and reliability, the competency items were factor analyzed. The underlying assumption of factor analysis suggests approximately 10 subjects for every variable. Since Jamieson's a priori dimensions consisted of 93 items, a statistically sound factor analysis involves a sample of approximately 1000 subjects. A sample of this size, associated with recreational sport in Canada, increases the likelihood of avoiding such an analysis. If the sample size is not sufficient for the factor analysis, the results are likely to have occurred by chance. Therefore, principal components, an exploratory technique for factor analysis, was conducted since several replications of this factor analysis are required before generalizations are permitted. In addition, item-dimension correlations were conducted to provide support for the factor solutions. In general, the validity and reliability of the derived dimensions were superior to the a priori dimensions. It is important to note, even though the number of items was significantly

reduced from 93 to 30, high reliabilities in each dimension were maintained. As a result, the derived dimensions are preferred over the a priori dimensions not only for reasons of validity and reliability, but also: (a) in reducing the number of items the amount of time to respond is reduced, thus increasing the probability of response for future studies, and (b) reduced dimensions and items provide a workable format for subsequent analysis.

The six-factor solution selected for this study is consistent with the literature which reports five to seven dimensions (Cash, 1983; Ellard, 1985; Hatfield et al., 1987; Lambrecht, 1987; Paris, 1979). The composition of the derived dimensions is not aligned with Jamieson's a priori dimensions. However, the derived dimensions relate closely to many a priori dimensions. The Procedural dimension includes competencies from the Officiating, Governance, Programming Techniques, and Business Procedures a priori dimensions. The Fiscal dimension represents competencies from the Business Procedures a priori dimension. This dimension is supported in the findings of McLellan and Pope (1984). The Conceptual dimension includes competencies from the Philosophy, Programming Techniques, and Science a priori dimensions. The Communication dimension includes competencies from the Communications and Management Techniques a priori dimensions. The Health and Safety dimension includes competencies from the Science and Safety/Prevention a priori dimensions. Finally, the Facility Management dimension has in common competencies of the Facility/Maintenance and Safety/Prevention a priori dimensions. This dimension is consistent with a category used by Boucher et al. (1980). The derived dimensions do not represent competencies in the Legality and Research a priori dimensions which Jamieson concluded were of importance to the top management position.

A number of common dimensions have been cited in the literature as a result of factor analytic procedures, and as a result can be termed "core" areas, applicable to many administrative areas. Some of the "core" competencies which share commonality with the dimensions of this study include Communication (Case, 1986; Cash, 1983; Jamieson, 1980; Lambrecht, 1987; Paris, 1979), and Fiscal (Cash, 1983; Hatfield et al., 1987; Paris, 1979). The Procedural and Facility

Management dimensions appear to share a commonality with the athletic administration literature (Cash, 1983; Richey, 1963; Sutton, 1975). In the review of literature, the Conceptual, and Health and Safety dimensions were not common among the research findings. As a result, these competencies are considered unique to the training of recreational sport administrators.

5.4 Importance Differences

The hypothesis that competency importance would be influenced by a Prior x Years x Position interaction was partially supported by a significant years effect (Procedural). In addition, the hypothesis that competency importance would be influenced by an Education x Years x Position interaction was partially supported by a significant years effect (Procedural) and education effect (Health & Safety). However, since the hypothesis that competency importance would be influenced by a Specialization x Years x Position interaction was not supported and a significant years effect not revealed, the years effect may have occurred due to chance. Therefore, the findings are interpreted with caution and replication of these results is recommended.

In relation to the differences based on years experience on-the-job, the group with more than 4 years experience in the position perceived the Procedural competencies of higher importance than the group with less than 4 years on-the-job experience. This difference may be due to the traditional emphasis placed upon competitive intramural programs during the early developmental stages of recreational sport. It appears administrators in the position for more than 4 years have held on to the traditional view of intramural competition as an integral component of the recreational sport program. Alternatively, administrators in the position less than 4 years may perceive the Procedural competencies as the responsibility of a student governing committee in keeping current with participatory management principles. In addition, the lower importance of this dimension may be attributed to the new diversity of campus recreation programs creating emphasis in other areas apart from competitive intramural programming.

With respect to education differences, the group with undergraduate level education perceived the Health and Safety dimension to be of higher importance than the group with graduate level education. This finding may reflect the fact that administrators with graduate level education hold positions in larger departments where Health and Safety competencies may be delegated to a lower management level. This notion is consistent with Jamieson's (1980) findings that Safety/Accident Prevention competencies are of prime concern to the entry level administrator.

In general, the incidence of two main effects suggests that recreational sport administrators and their superordinates are more similar than dissimilar in perceived patterns of competency importance. The results of the Specialization x Years x Position hypothesis support the findings of Voelter's (1985) study that no significant differences in the perceptions of competencies required in the job were revealed among those trained in a formal educational administration program and those not trained in such a program.

5.5 Performance Differences

The results indicate the performance of Procedural competencies was influenced in all three *ANOVA* designs. The hypothesis that a Prior x Years x Position interaction would significantly influence perceived performance was supported by the second-order interaction and main years effect. The hypothesis that an Education x Years x Position interaction would significantly influence perceived performance was partially supported by a Years x Position interaction. In addition, the hypothesis that perceived performance would be influenced by a Specialization x Years x Position interaction was partially supported by a Specialization x Position interaction, Years x Position interaction, and years main effect. Since the Years x Position interaction was supported in all designs, but was significant in the presence of a third variable, prior, all first-order interactions and main effects were not interpreted.

The findings of the three-way interaction revealed, as expected, that the superordinates perceived administrators with prior administrative experience and more than 4 years on-the-job

experience to perform Procedural competencies better than administrators with prior administrative experience and less than 4 years on-the-job experience. The finding may also be due to the significant difference based on the importance of this dimension. Since administrators with more than 4 years experience in the position perceived Procedural competencies to be highly important it is not surprising that these experienced professionals perceived performance to be better than the other group. This rationale reinforces the point of jointly examining importance and performance for existing patterns.

The performance of the Fiscal competencies was influenced in only one design. Since the main effect occurred within the Prior x Years x Position interaction and involved prior administrative experience, the interpretation of the finding is straightforward. The results suggest that administrators are perceived to perform the Fiscal dimension effectively as a result of prior administrative experience. This finding may indicate that Fiscal competencies require practical experience and are best developed on-the-job. The fact that prior administrative experience was significant and not the years in the position may also suggest that basic fiscal skills were developed prior to the current position. Furthermore, Fiscal competencies initially developed in the position may not have remained constant in order to influence performance in later years. Thus, this difference may reflect change within fiscal responsibilities requiring new skills by the administrator due to possible larger budgets, changes in funding, and budgetary restraints.

The performance of the Conceptual dimension was influenced in two of three designs. The hypothesis that a Prior x Years x Position interaction would significantly influence perceived performance was partially supported by a Prior x Years interaction, Prior x Position interaction, and years main effect. In addition, the hypothesis that an Education x Years x Position interaction would significantly influence perceived performance was partially supported by an Education x Years interaction and significant education effect. Since the selection of one significant interaction from a number of comparisons capitalizes upon chance, the finding is interpreted with caution, as replication of the results is recommended.

With relation to the interpretable Education x Years interaction, the results indicate that level of education interacting with less than 4 years experience on-the-job significantly influences the performance of Conceptual competencies. This finding indicates that Conceptual competencies, possibly due to their philosophical and theoretical foundations, are best developed in graduate level course work. Employers may find this result important in screening applicants for potential recreational sport administrative positions.

The performance of the Communication dimension was influenced in only one design. Since the Prior x Position interaction was uncomplicated by the effects of other variables, the interpretation of the finding is straightforward. The results indicate that position interacting with no prior administrative experience significantly influences performance of Communication competencies. In addition, prior experience interacting with the administrator position significantly influences performance in this dimension. These findings indicate that the superordinate does not perceive lack of prior experience a weakness in the assessment of Communication competencies. This point is of interest since the superordinate is in the position of establishing performance standards for evaluation purposes. In addition, although the administrators' perceptions of performance differ based on prior administrative experience, the superordinates' perceptions differ from administrators with no prior administrative experience. This point gives support to the claim by Kelley (1975) and Sanders (1980) that the evaluation of competence should involve the perceptions of referent groups responsible for setting standards.

The failure to find differences in competency performance which corresponded with specialization was unexpected. As the findings show, administrators with a major concentration in administrative course work did not differ significantly from administrators with little to no formal administrative training. The combination of non-distinguishable interactions, however, suggests differences were present, but require further study for conclusive evidence. Although not surprising, upon closer examination, the findings suggest that the end results of formal course work training are non-distinguishable from the outcomes of possible professional development semi-

nars, workshops, or conferences enrolled in while in the position. In addition, it is difficult to infer that no formal administration course work is effective for recreational sport administrators, since only course work relevant to formal preparation was surveyed, excluding any administrative experiences developed through in-service training.

The lack of evidence to reject the null hypothesis also lends support to Livingston's (1971) and Nickse and McClure's (1981) notion that formal education does not assure that an individual will be successful in the field. The inherent weakness with formal education programs lies in the eclectic and individualistic nature and quality of the programs. As reported by Parkhouse (1987), the curricula varied among institutions surveyed making valid comparisons impossible. The lack of standards among sport management programs remains a primary criticism which may hinder the development of the profession. Unless program standards can be agreed upon, or certification requirements imposed, it will be difficult to conduct valid comparisons on the role of recreational sport administrator.

5.6 Quadrant Assessment

When the Procedural dimension was analyzed through the QAM based on an importance years effect, the dimension was grouped into Quadrants 3 and 1. This finding compares with the Quadrant assessment of the Education x Years performance interaction, and the Prior x Years x Position performance interaction. However, even though one group has competency attainment in this area, the other group does not perceive this dimension as a priority. As a result, it cannot be concluded that one group is more effective at meeting the demands of the position based on Procedural competencies when importance and performance are jointly examined.

Since importance and performance were significantly different for the Procedural dimension, the finding suggests that in addition to the years, education, prior experience, and position interactions, changes in performance may have been influenced by the corresponding difference in importance among the groups. This explanation gives support to the claim by Boyatzis (1982)

that the measurement of performance is based upon an individual's perception of an appropriate goal. Further study is needed for conclusive evidence of the effects of important goals on performance.

When the Fiscal dimension was analyzed through the QAM based on a prior experience effect for performance, the dimension was grouped into Quadrants 1 and 3. Although one group has competency attainment in this dimension, the other group does not perceive Fiscal competencies as a priority of the position. As a result, one group cannot be considered more effective than the other at meeting the demands of the position since perceived priorities are relatively different. Therefore, from the evidence presented, there is no one best method of attaining Fiscal competencies.

The Conceptual dimension was analyzed through the QAM based on an Education x Years performance interaction. The dimension was grouped into Quadrants 2 and 1. This finding suggests that when importance and performance are jointly examined one group is identified as effectively meeting the demands of the Conceptual competencies. Therefore, administrators in the position less than 4 years, with graduate level education, are considered best meeting the demands of the Conceptual competencies.

The Communication dimension was analyzed through the QAM based on a Prior x Position performance interaction. Within this interaction two groups are considered effectively meeting the needs of this dimension. Based on Quadrant 1 assessment, administrators with no prior administrative experience, as perceived only by the superordinate, as well as administrators with prior administrative experience, are considered to be effectively meeting the demands of the Communication competencies. This statement appears in conflict, reinforcing the possibility of disagreement in perceptions between referent groups. Due to the nature of performance evaluations, the perceptions of the superordinate may take precedence.

Finally, the Health and Safety competencies were analyzed through the QAM based on a main education effect for importance. The dimension was grouped into Quadrants 2 and 3.

Although the group with undergraduate level education perceived this dimension of high importance, performance was perceived to be relatively low, indicating an area of discrepancy. The group with graduate level education did not perceive the Health and Safety dimension as a demand for the position. As a result, neither group can be considered as effectively meeting the high priority demands of this dimension.

Based upon the findings of the analysis of variance for performance it would appear that there are six significant groups from which effective performance could be determined. However, when importance and performance are jointly examined for each of the significant groups, the QAM supports only three of six groups as actually performing high priority competencies effectively.

While the discussed shortcomings of the present study and the tentativeness of the findings advise caution in interpretation and application, the results reported encourage further examination of training methods in predicting performance and ultimately competency attainment. The summary, conclusions, and recommendations for future study are presented in the final chapter - Chapter VI.

Chapter VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter includes a summary of the study which restates the purpose and research problems, reviews the population and methodology, and highlights the findings. This chapter also presents the conclusions and recommendations for further research.

6.1 Summary

The rapid growth of sport organizations over the past few decades has been accompanied by greater formalization, resulting in increased management levels with specialized skills and knowledges. The complexity of the sport administrator's role, coupled with challenges of accountability and managerial effectiveness have been responsible for much of the attention on management competency. Information relating to the requisite competencies and training methods by which administrative competence can be effectively attained has been the subject of this investigation.

The main purpose of this study was to analyze the competency perceptions held by recreational sport administrators and their superordinates in Canadian colleges and universities to determine if relationships exist among training methods. In addition, the study consisted of five sub-problems: (1) to determine what homogeneous groupings of competencies provide a valid scale for both competency importance and performance, (2) to determine if relationships exist among training methods based on importance of competency dimensions, (3) to determine if relationships exist among training methods based on performance of competency dimensions, (4) to determine the placement of competency dimensions in the QAM based on High-Low values, and (5) to determine the training most effective in preparing an individual to meet the current demands of the profession. Hypotheses were developed for the two sub-problems regarding relationships among training methods.

The population of the study consisted of recreational sport administrators and their superordinates in Canadian colleges and universities. A total number of 123 institutions were included in the investigation.

The mail questionnaire was used as the instrument to gather the data. A literature search identified a set of competency statements, developed by Jamieson (1980), which were suitable for the purposes of this study. Permission to use and modify the *Jamieson RSCA* was received. The modified questionnaire was pilot-tested with nine expert administrators, two of which were superordinates. After this preliminary testing, the findings were incorporated into the "*Management Competency and Training Questionnaire*" which was mailed to the members of the population.

The first follow-up procedure occurred two weeks after the original mailing date when a post card was mailed as a reminder to those who had not yet responded. After three weeks, a second follow-up letter and additional copy of the questionnaire were sent to non-respondents. A total of 126 responses were received, yielding 114 usable questionnaires for a return rate of 48.7 percent.

The instrument contained 93 statements purporting to describe the job of the recreational sport administrator. Respondents were asked to rate each statement twice; first, on the importance of the task for the recreational sport administrator and second, on the current ability of the recreational sport administrator to perform the task. Specific emphasis was placed on the utilization of characteristics pertaining to training for the purpose of establishing predictors of competency importance and performance. The training variables included: years experience on-the-job, prior experience, level of education, and specialization.

The data was analyzed statistically through the application of descriptive statistics, factor analysis, correlations, and analysis of variance using the *SPSSx* program. The normative group generally found the items to be of relative importance, with an overall mean importance score of 3.35. In addition, the group was generally knowledgeable in the performance of the items, with a mean performance score of 3.36.

In order to develop a psychometric scale for both competency importance and performance, the data was tested for reliability using Cronbach's alpha, and for validity using Pearson correlations and factor analysis. Employing principal components with iterations and varimax rotation a set of factors with loadings of .55 or higher were derived for both measures. Six factors (31 items) were extracted for importance and seven factors (36 items) were extracted for performance. The derived factor solutions were each cross-tested on both measures of importance and performance for validity and reliability and compared to that of the a priori dimensions. As a result, the importance factor solution was selected for further refinement. Six dimensions (30 items) were ultimately selected as the best valid measure of competency importance and performance for subsequent analyses. The dimensions included: Procedural, Fiscal, Conceptual, Communication, Health and Safety, and Facility Management.

Competency importance perceptions were analyzed using 3 three-way *MANOVA* designs. The *MANOVA* assumptions were initially tested and violations of normality did not significantly deviate the equal variance-covariance matrices. In addition, multicollinearity and singularity were not evident, and the dependent variables were correlated, indicating the appropriateness of *MANOVA* procedures. The results revealed two significant importance relationships:

1. The findings indicated that there was a difference in the importance of Procedural competencies based on the number of years experience on-the-job.
2. The results also found a significant difference in the importance of Health and Safety competencies between administrators with undergraduate level education and graduate level education.

Competency performance perceptions were analyzed in a series of three-way *ANOVA* designs. No violations were detected for the assumptions of normality and homogeneity of variance. The results identified significant differences in four competency dimensions.

1. Performance differences were found in Procedural competencies based on a Years x Position interaction in the presence of another variable - prior experience.
2. The findings also revealed differences in Fiscal competencies based on a main effect of prior experience.
3. Differences in the performance of Conceptual competencies supported the Education x Years interaction hypothesis.

4. Significant differences were found in the Communication competencies between the administrator group with no prior experience and other groups based on a position effect and prior effect.

No significant performance differences were found in Health and Safety, and Facility Management competencies as a result of training.

When competency importance and performance measures were examined jointly for the significant groups, the following findings were supported as effectively meeting the demands of the profession based on placement of competency dimensions in Quadrant 1:

1. The group in the position less than 4 years with graduate level education are considered effectively meeting the high priority demands of the Conceptual dimension over the group with less than 4 years experience in the position, and with undergraduate level education.

2. The superordinates perceive their administrators with no prior administrative experience are effectively meeting the high priority demands of the Communication dimension over the self-perceptions of administrators with no prior administrative experience.

3. Administrators with prior administrative experience are considered effectively meeting the high priority demands of the Communication dimension over administrators with no prior experience.

6.2 Conclusions

This study differs from previous research on management competency by virtue of the methodology procedures employed. The study attempts to develop a psychometrically valid scale from which analysis of both competency importance and performance may be conducted. In addition, the study represents an exploratory effort in the field of sport administration to empirically analyze competency importance and performance perceptions based on training. Finally, the study is unique to other studies empirically analyzing competency perceptions in that importance and performance are jointly examined in order to determine areas of discrepancy or competency attainment.

As with other studies reported by Paton (1987), the weakness in the research design is the small sample leading to results that are not generalizable. The results obtained in this study, however, appear to warrant a number of conclusions related to the stated research problems which may be of interest to the recreational sport administrator.

First, management competencies for recreational sport administrators have been identified and an exploratory factor analysis supports a six-factor solution. The six dimensions of Procedural, Fiscal, Conceptual, Communication, Health and Safety, and Facility Management appear to be separate, but related factors. If future research confirms this multidimensional scale, a reliable and valid measure of management competency will permit generalizable results. The empirically derived dimensions also provide support for previous research (Jamieson, 1982; Zeigler & Bowie, 1983) which indicates that a core of competencies are relevant to the role of recreational sport administrator, in addition to specialized skills unique to the profession. This is evidenced by the consistency of importance scores across the group classifications and the reliability of the instrument. The identification of specialized skills and knowledge further emphasizes the need for competent administrators trained for a primary role in sport administration. Furthermore, the finding supports the recommendation of Parkhouse and Ulrich (1979) that specialized training for various sport-related occupations should be defined and modified to meet unique job requirements.

Secondly, recreational sport administrators and their superordinates do not differ significantly in their perceptions of the importance of competency dimensions for the role of recreational sport administrator. This finding suggests that both groups are in agreement concerning role definition. Although many similarities in perceptions of competency importance emerged, the results also suggest significant differences in the level of importance attributed to competency dimension by training methods. Differences in the perception of competency importance emerged in relation to the number of years in the position, with respect to Procedural competencies, and level of education, with respect to Health and Safety competencies. These findings indicate the competency emphasis for each group in relation to their perceived roles as recreational sport administrator. As a result, undergraduate programs in sport administration should offer training in health and safety competencies to adequately prepare graduates for positions in recreational sport administration. Since administrators with over 4 years on-the-job experience emphasize Proce-

dural competencies, issues related to this dimension should continue to be addressed in journal articles and at conferences.

With the exception of the Communication dimension, the perceptions of competency performance were similar for the recreational sport administrators and their superordinates. Since evaluations are primarily conducted by superordinates the results suggest the perceptions of this group are highly important in formulating standards of competent behaviour.

Differences in the perceptions of competency performance emerged in relation to prior experience, years in the position, and level of education. The perceived performance differences, with respect to Procedural, Fiscal, Conceptual, and Communication competencies, identify areas which could serve as a guide for further emphasis in training programs. In addition, the QAM was suitable for identifying training methods effectively meeting the demands of the profession based on Quadrant 1 placement of the Conceptual and Communication competency dimensions. Although there appears to be no one best method of training which effectively prepares recreational sport administrators in all competency dimensions, the results lend empirical support to the value of specialized training in specific competencies as a means of producing competent administrators to work in the field. Until a standard knowledge base can be developed which will permit the predictable link between instructional processes and the development of competencies, little can be gained from the debate over the "best" methodology to use in planning or delivering administrative training programs (Kelley, 1975).

Finally, being part of a profession means possession of prerequisite specialized skills and training in addition to continually evaluated and improved standards (Pope, 1982). This study identified specialized competencies and training methods for competency attainment. Professional standards for ensuring competent graduates are available for the field rests with educators, while the standard of hiring only competent administrators remains the responsibility of the employer.

The findings from this study have several implications. Competency items/dimensions which were identified as the most important among the overall group (Communication, Conceptual, Health and Safety, and Fiscal dimensions) could serve as a basis in establishing prerequisite competencies for the certification of professionals. Data regarding the similarities and differences in competency importance and performance could be examined and used in curriculum development of competency-based programs to ensure relevant competencies are emphasized. Educators and employers may also find the results useful as a means of verifying course content in professional development/training programs. Additional areas of necessary training may be targeted based on the identification of discrepancy areas between importance and performance.

The results may also serve as a guide to employers in formulating hiring criteria, as well as performance standards for evaluating current administrators. The use of the QAM provides the means of detecting weaknesses or problem areas which may impede the effectiveness of the recreational sport administrator. Recreational sport administrators may use this data to gain insights into their own potentially significant strengths and weaknesses.

6.3 Recommendations

Although this study identifies management competencies and attempts to determine effective training methods for recreational sport administrators, it is just a beginning for further research. This and subsequent studies may impact upon the training of recreational sport administrators by emphasizing the need for specialty tracks within the sport administration curriculum. Based upon the results of this investigation, the following recommendations are offered for future study:

1. This study should be replicated with an increased sample size, in order to develop an improved version of the "*Management Competency and Training Questionnaire*" (30 items). Evidence of the overall dimension reliability and validity suggests the instrument can be a valuable measure for the investigation of perceived competency importance and performance in recreational sport settings. Continued research may provide further validity evi-

dence. The larger sample size would ensure the assumptions of factor analysis and therefore permit generalizable results in order that a standardized questionnaire for the field of recreational sport administration could be developed. The availability of a standardized questionnaire would permit valid comparisons of the results from subsequent studies.

2. Since the important competencies identified in this study comprise the three management levels delineated by Jamieson (1980), further analysis should be conducted on the same population to determine if department size and institutional enrollment confound competency importance and performance.
3. A discriminate analysis should be conducted between administrators in other settings such as commercial sport clubs or professional sport and recreational sport administrators to determine the competencies/dimensions which discriminate group membership based on importance and performance. Competencies which are capable of discriminating group membership are considered unique to the particular group and thus identify areas of training which require a specialized focus.
4. In order to have a true perspective of individual competence, researchers and employers investigating competency performance should include perceptions of competency importance in their analysis.
5. The study should be replicated periodically to stay current with changing environments and administrative roles.

The role of the recreational sport administrator is complex and dynamic in response to the changing needs of its clientele and environment. The data generated from this study, the implications herein, and the recommendations provided may be helpful in guiding future research in order to make stronger inferences for improving training programs of recreational sport administration and in turn establishing standardized qualifications for the profession.

Appendix A

PILOT TEST INSTRUMENT

MANAGEMENT COMPETENCY AND TRAINING QUESTIONNAIRE *

The following survey is designed to permit input relative to the competencies performed and training possessed by the chief intramural sport administrator in your institution. The following definitions provide a guide for appropriately answering the questionnaire.

Intramural Sports	Structured, competitive activity in game form with groups within local setting.
Intramural Administrator	Director, assistant director, or administrator of intramurals, sports, campus recreation, recreational sports.
Competency	A composite skill behaviour or knowledge.
Training	The combination of academic preparation, related experience, and on-the-job experience.
Immediate Supervisor	The individual who is directly responsible for the evaluation of the intramural administrator.

PLEASE NOTE:

The data received from this questionnaire will be analyzed and interpreted anonymously with no reference to the name of the respondent. Such names will be kept in confidence and will not be used for interpretation or analysis of results.

INSTRUCTIONS:

The attached survey is composed of two types of questions: Section I, consists of background information on training (*to be completed by the intramural administrator only*). Section II, includes statements describing behaviours or knowledge areas of chief intramural administrators (*to be completed by the intramural administrator and immediate supervisor*). Feel free to make any corrections in wording, to add or delete any competencies, or to make general recommendations on the structure of the survey. Also, please note any competencies you feel are not grouped in the proper category. If you add statements, please include a rating of the additional competency.

* *Adapted from Jamieson, L. (1980). A competency analysis of recreational sports personnel in selected institutional settings (Doctoral dissertation, Indiana University, 1980).*

CODE ____

1. BACKGROUND INFORMATION

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(to be completed by the intramural administrator only)

Title of Respondent: _____

Title of Immediate Supervisor: _____

Number of years in present position _____

Number of years in present organization _____

Did you have administrative experience prior to your present position? If so how many years? (circle)

a. yes

b. no

c. 1 2 3 4 5 6 7 8 9 10 over

If the answer to the preceding question is yes, please check (✓) your experience(s).

____ school administration
____ athletic director
____ activity supervisor
____ business administration
____ entrepreneur
____ department head
____ head of physical education
other(s):
_____
_____

____ assistant principal or principal
____ committee chair
____ internship
____ assistant or associate athletic director
____ consultant for _____
_____
____ supervisor or assistant director of intramurals
____ executive position in
_____

Level of Formal Education: (Please circle appropriate response)

High School Diploma yes no

College Diploma yes no

Major(s) _____

Minor(s) _____

Undergraduate Degree yes no

Major(s) _____

Minor(s) _____

CODE ____

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11. COMPETENCY ANALYSIS

INSTRUCTIONS: Read each statement carefully. Circle the number which represents your perception as to the degree of importance each competency has to the performance of a top intramural administrative job.

1. -- Non-essential
2. -- Minimal importance
3. -- Important
4. -- Very important
5. -- Essential

Re-read each statement. Circle the value which represents your perception of the current ability (of the intramural administrator) to perform each statement.

1. -- Needs improvement
2. -- Slightly knowledgeable
3. -- Knowledgeable
4. -- Very knowledgeable
5. -- Expert

NA -- No opinion; no assessment can be made

	Importance	Current Ability
	1 2 3 4 5	1 2 3 4 5 NA
BUSINESS PROCEDURES		
1. Prepares and defends a budget proposal.	1 2 3 4 5	1 2 3 4 5 NA
2. Knows basic bookkeeping procedures.	1 2 3 4 5	1 2 3 4 5 NA
3. Applies purchasing policies and procedures.	1 2 3 4 5	1 2 3 4 5 NA
4. Examines and analyzes the budget.	1 2 3 4 5	1 2 3 4 5 NA
5. Initiates effective office procedures to handle registrations, reports, notices, etc.	1 2 3 4 5	1 2 3 4 5 NA
6. Identifies sources of income for budget.	1 2 3 4 5	1 2 3 4 5 NA
7. Prepares organizational guidelines for staffing and programming.	1 2 3 4 5	1 2 3 4 5 NA
8. Prepares financial reporting statements.	1 2 3 4 5	1 2 3 4 5 NA
9. Prepares reports for accidents, disciplinary action, protests, complaints, etc.	1 2 3 4 5	1 2 3 4 5 NA

_____

_____

_____

CODE ____
143

Importance	Current Ability
1. -- Non-essential	1. -- Needs improvement
2. -- Minimal importance	2. -- Slightly knowledgeable
3. -- Important	3. -- Knowledgeable
4. -- Very important	4. -- Very knowledgeable
5. -- Essential	5. -- Expert
	NA -- No opinion; no assessment

FACILITY/MAINTENANCE (cont'd)

	Importance	Current Ability
6. Develops and maintains planning schedules for improvement, construction and maintenance of facilities	1 2 3 4 5	1 2 3 4 5 NA
7. Recognizes program needs in facility design.	1 2 3 4 5	1 2 3 4 5 NA
8. Participates in short and long range facility development.	1 2 3 4 5	1 2 3 4 5 NA
9. Reports maintenance needs of facilities and equipment.	1 2 3 4 5	1 2 3 4 5 NA

GOVERNANCE

1. Identifies and utilizes procedures to regulate the conduct of specators and participants.	1 2 3 4 5	1 2 3 4 5 NA
2. Conducts and investigates disciplinary action, accidents, game protests and eligibility status reports.	1 2 3 4 5	1 2 3 4 5 NA
3. Establishes and maintains eligibility guidelines for participants.	1 2 3 4 5	1 2 3 4 5 NA
4. Demonstrates ability to organize a governing or appeals board.	1 2 3 4 5	1 2 3 4 5 NA
5. Understands procedures for settling protests.	1 2 3 4 5	1 2 3 4 5 NA
6. Establishes due process for dealing with protests.	1 2 3 4 5	1 2 3 4 5 NA
7. Prepares written documentation of cases dealing with protests.	1 2 3 4 5	1 2 3 4 5 NA

Importance	Current Ability
1. -- Non-essential	1. -- Needs improvement
2. -- Minimal importance	2. -- Slightly knowledgeable
3. -- Important	3. -- Knowledgeable
4. -- Very important	4. -- Very knowledgeable
5. -- Essential	5. -- Expert
	NA -- No opinion; no assessment

	Importance	Current Ability
MANAGEMENT TECHNIQUES		
1. Conducts staff meetings with program personnel.	1 2 3 4 5	1 2 3 4 5 NA
2. Demonstrates knowledge of organizational theory and behaviour.	1 2 3 4 5	1 2 3 4 5 NA
3. Implements planning strategies for program.	1 2 3 4 5	1 2 3 4 5 NA
4. Prepares and reviews committee, program and informational reports.	1 2 3 4 5	1 2 3 4 5 NA
5. Evaluates full-time personnel for appointment, promotion, leave and termination.	1 2 3 4 5	1 2 3 4 5 NA
6. Utilizes effective decision-making skills.	1 2 3 4 5	1 2 3 4 5 NA
7. Develops and maintains standards of performance for program operation.	1 2 3 4 5	1 2 3 4 5 NA
8. Schedules part-time employees for work.	1 2 3 4 5	1 2 3 4 5 NA
9. Conducts visitations of other programs and facilities.	1 2 3 4 5	1 2 3 4 5 NA
10. Supervises a system of volunteer personnel.	1 2 3 4 5	1 2 3 4 5 NA
11. Utilizes time management techniques.	1 2 3 4 5	1 2 3 4 5 NA
12. Evaluates and documents program development.	1 2 3 4 5	1 2 3 4 5 NA
13. Evaluates part-time personnel for changes in status.	1 2 3 4 5	1 2 3 4 5 NA
OFFICIATING		
1. Prepares sport rules and regulations.	1 2 3 4 5	1 2 3 4 5 NA

Importance	Current Ability
1. -- Non-essential	1. -- Needs improvement
2. -- Minimal importance	2. -- Slightly knowledgeable
3. -- Important	3. -- Knowledgeable
4. -- Very important	4. -- Very knowledgeable
5. -- Essential	5. -- Expert
	NA -- No opinion; no assessment

PHILOSOPHY (cont'd)

	Importance	Current Ability
7. Understands the theories of cooperative and competitive play.	1 2 3 4 5	1 2 3 4 5 NA
8. Differentiates between the philosophical bases of physical education, recreation, athletics and intramural sports.	1 2 3 4 5	1 2 3 4 5 NA

PROGRAMMING TECHNIQUES

1. Knows procedures for dealing with recognition of participants.	1 2 3 4 5	1 2 3 4 5 NA
2. Understands organizational aspects of informal sports programming.	1 2 3 4 5	1 2 3 4 5 NA
3. Prepares administrative guidelines for programming.	1 2 3 4 5	1 2 3 4 5 NA
4. Understands organizational and operational aspects of intramural (team, lifetime) sports programming.	1 2 3 4 5	1 2 3 4 5 NA
5. Develops and maintains procedures for postponements and rescheduling.	1 2 3 4 5	1 2 3 4 5 NA
6. Demonstrates ability to schedule tournaments, leagues and meets.	1 2 3 4 5	1 2 3 4 5 NA
7. Develops and maintains procedures for dealing with forfeiture of games.	1 2 3 4 5	1 2 3 4 5 NA
8. Develops extramural games and contests.	1 2 3 4 5	1 2 3 4 5 NA
9. Adapts programs to the special needs of the handicapped.	1 2 3 4 5	1 2 3 4 5 NA
10. Understands the organizational process of developing sport instructional programs.	1 2 3 4 5	1 2 3 4 5 NA

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Importance	Current Ability
1. -- Non-essential	1. -- Needs improvement
2. -- Minimal importance	2. -- Slightly knowledgeable
3. -- Important	3. -- Knowledgeable
4. -- Very important	4. -- Very knowledgeable
5. -- Essential	5. -- Expert
	NA -- No opinion; no assessment

	Importance	Current Ability
SAFETY/PREVENTION		
1. Recognizes safety hazards which cause injury.	1 2 3 4 5	1 2 3 4 5 NA
2. Relates accident trends to elimination of hazards.	1 2 3 4 5	1 2 3 4 5 NA
3. Understands symptoms of injuries.	1 2 3 4 5	1 2 3 4 5 NA
4. Ensures safety through equipment maintenance.	1 2 3 4 5	1 2 3 4 5 NA
5. Develops supervisory techniques to avoid accidents.	1 2 3 4 5	1 2 3 4 5 NA
6. Possesses necessary certification in first aid.	1 2 3 4 5	1 2 3 4 5 NA
7. Possesses certification in water safety.	1 2 3 4 5	1 2 3 4 5 NA
8. Possesses certification in cardiopulmonary resuscitation.	1 2 3 4 5	1 2 3 4 5 NA
9. Recognizes various factors that lead to accidents.	1 2 3 4 5	1 2 3 4 5 NA
10. Familiar with effective decision-making techniques in dealing with accidents.	1 2 3 4 5	1 2 3 4 5 NA
11. Understands specific risks of sport activity.	1 2 3 4 5	1 2 3 4 5 NA
_____		
_____		
_____		
SCIENCE		
1. Recognizes the effect of intramural sports on stress increase/reduction.	1 2 3 4 5	1 2 3 4 5 NA

Appendix B

FIELD STUDY INSTRUMENT

MANAGEMENT COMPETENCY AND TRAINING

QUESTIONNAIRE

The following survey is designed to permit input relative to the competencies performed and training possessed by the top recreational sport administrator in your institution. The following definitions provide a guide for appropriately answering the questionnaire.

Competency	A composite skill, behavior or knowledge
Training	The combination of academic preparation, related experience, and on-the-job experience
Recreational Sports	Consist of intramurals, recreation and leisure sports, clubs, non-credit instruction
Recreational Sport Administrator	Top level; director, assistant director, coordinator of campus recreation, intramurals
Immediate Supervisor	The individual who is directly responsible for the evaluation of the recreational sport administrator

PLEASE NOTE:

The data received from this questionnaire will be analyzed and interpreted anonymously with no reference to the name of the respondent or institution. Such names will be kept in confidence and will not be used for interpretation or analysis of results.

INSTRUCTIONS:

The attached survey is composed of two types of questions:
Section 1, consists of background information.
Section 11, includes statements describing specific behaviors and/or knowledge areas of top recreational sport administrators.

CODE _____

1. BACKGROUND INFORMATION

(to be completed by the Recreational Sport Administrator)

1. Title of Respondent: _____

2. Title of Immediate Supervisor: _____

3. Number of years in present position (Please circle)

   less than 1 1 2 3 4 5 6 7 8 9 10 over

4. Number of years in present organization _____

5. Number of years in recreational sports field _____

6. Did you hold any administrative positions prior to your current position? (Please circle)

   yes no

7. If the answer to the preceding question is yes, please check (✓) your experience(s).

   _____ athletic director
   _____ assistant or associate athletic director
   _____ activity supervisor
   _____ business administration
   _____ entrepreneur
   _____ department head
   _____ head of physical education
   other(s):
   _____
   _____
   _____ assistant principal or principal
   _____ school administration
   _____ internship
   _____ committee chair
   _____ consultant for _____
   _____
   _____ supervisor or assistant director of intramurals
   _____ executive position in
   _____

8. Level of Formal Education: (Please circle if completed)

   a) High School Diploma yes no

   b) College Diploma(s) yes no
      i) Major _____ Minor _____
      ii) Major _____ Minor _____

   c) Undergraduate Degree(s) yes no
      i) Major _____ Minor _____
      ii) Major _____ Minor _____

CODE _____

11. COMPETENCY ANALYSIS *(for the Recreational Sport Administrator)* 150

INSTRUCTIONS: The following statements may refer to specific behaviors and/or knowledge that may be utilized in your present position. Please answer each statement as to how it applies to your current responsibilities.

1. Read each statement carefully. Circle the number that indicates the degree of importance of the statement in the performance of your present position.
2. Re-read each statement. Circle the number that indicates your current ability to perform the statement.

The following scales are described to assist in making appropriate choices.

Importance

5. -- Essential
4. -- Very Important
3. -- Important
2. -- Minimal Importance
1. -- Not Important
0. -- Important, but delegated to subordinates

Current Ability

5. -- Expert
4. -- Very Knowledgeable
3. -- Knowledgeable
2. -- Slightly Knowledgeable
1. -- Needs Improvement
NA -- No opinion; no assessment can be made

	Importance	Current Ability
	5 4 3 2 1 0	5 4 3 2 1 NA
1. Prepares and defends a budget proposal	5 4 3 2 1 0	5 4 3 2 1 NA
2. Coordinates interagency cooperation	5 4 3 2 1 0	5 4 3 2 1 NA
3. Comprehends design specifications of equipment and facilities	5 4 3 2 1 0	5 4 3 2 1 NA
4. Identifies and utilizes procedures to regulate the conduct of spectators and participants	5 4 3 2 1 0	5 4 3 2 1 NA
5. Comprehends legal implications in recreational sports	5 4 3 2 1 0	5 4 3 2 1 NA
6. Conducts staff meetings with program personnel	5 4 3 2 1 0	5 4 3 2 1 NA
7. Prepares sport rules and regulations	5 4 3 2 1 0	5 4 3 2 1 NA
8. Knows procedures for dealing with recognition of participants	5 4 3 2 1 0	5 4 3 2 1 NA

Importance	Current Ability
5. -- Essential	5. -- Expert
4. -- Very Important	4. -- Very Knowledgeable
3. -- Important	3. -- Knowledgeable
2. -- Minimal Importance	2. -- Slightly Knowledgeable
1. -- Not Important	1. -- Needs Improvement
0. -- Important, delegated	NA -- No opinion; no assessment

	Importance	Current Ability
24. Consults on sports programming and facilities	5 4 3 2 1 0	5 4 3 2 1 NA
25. Develops and maintains procedures for postponements and rescheduling	5 4 3 2 1 0	5 4 3 2 1 NA
26. Demonstrates creative writing through articles, reports, newsletters	5 4 3 2 1 0	5 4 3 2 1 NA
27. Recognizes certain medical considerations in exercise	5 4 3 2 1 0	5 4 3 2 1 NA
28. Develops supervisory techniques to avoid accidents	5 4 3 2 1 0	5 4 3 2 1 NA
29. Identifies sources of income for budget	5 4 3 2 1 0	5 4 3 2 1 NA
30. Identifies and encourages participants for programs	5 4 3 2 1 0	5 4 3 2 1 NA
31. Develops and maintains planning schedules for improvement, construction and maintenance of facilities	5 4 3 2 1 0	5 4 3 2 1 NA
32. Recognizes program needs in facility design	5 4 3 2 1 0	5 4 3 2 1 NA
33. Establishes due process for dealing with program concerns	5 4 3 2 1 0	5 4 3 2 1 NA
34. Utilizes effective decision-making skills	5 4 3 2 1 0	5 4 3 2 1 NA
35. Evaluates part-time personnel for changes in status	5 4 3 2 1 0	5 4 3 2 1 NA
36. Organizes and conducts clinics for officials	5 4 3 2 1 0	5 4 3 2 1 NA
37. Understands leadership techniques operational, in recreational sports	5 4 3 2 1 0	5 4 3 2 1 NA
38. Demonstrates ability to schedule tournaments, leagues and meets	5 4 3 2 1 0	5 4 3 2 1 NA

Importance	Current Ability
5. -- Essential	5. -- Expert
4. -- Very Important	4. -- Very Knowledgeable
3. -- Important	3. -- Knowledgeable
2. -- Minimal Importance	2. -- Slightly Knowledgeable
1. -- Not Important	1. -- Needs Improvement
0. -- Important, delegated	NA -- No opinion; no assessment

	Importance	Current Ability
54. Understands the broad spectrum of recreational sports opportunities	5 4 3 2 1 0	5 4 3 2 1 NA
55. Understands organizational and operational aspects of various types of sports programming	5 4 3 2 1 0	5 4 3 2 1 NA
56. Develops and analyzes recreational sports aspects of program participation statistics	5 4 3 2 1 0	5 4 3 2 1 NA
57. Knows levels of competition in sport	5 4 3 2 1 0	5 4 3 2 1 NA
58. Examines and analyzes the budget	5 4 3 2 1 0	5 4 3 2 1 NA
59. Maintains effective communications with public	5 4 3 2 1 0	5 4 3 2 1 NA
60. Develops maintenance planning for facilities and equipment	5 4 3 2 1 0	5 4 3 2 1 NA
61. Demonstrates ability to organize a governing or appeals board	5 4 3 2 1 0	5 4 3 2 1 NA
62. Prepares and reviews committee, program and informational reports	5 4 3 2 1 0	5 4 3 2 1 NA
63. Knows basic recreational sports terminology	5 4 3 2 1 0	5 4 3 2 1 NA
64. Consults on sport programming and facilities	5 4 3 2 1 0	5 4 3 2 1 NA
65. Ensures safety through equipment maintenance	5 4 3 2 1 0	5 4 3 2 1 NA
66. Recognizes individual differences in exercises	5 4 3 2 1 0	5 4 3 2 1 NA
67. Initiates effective office procedures to handle registrations, reports, notices, etc.	5 4 3 2 1 0	5 4 3 2 1 NA
68. Prepares and develops public presentations	5 4 3 2 1 0	5 4 3 2 1 NA

Importance			Current Ability		
5.	--	Essential	5.	--	Expert
4.	--	Very Important	4.	--	Very Knowledgeable
3.	--	Important	3.	--	Knowledgeable
2.	--	Minimal Importance	2.	--	Slightly Knowledgeable
1.	--	Not Important	1.	--	Needs Improvement
0.	--	Important, delegated	NA	--	No opinion; no assessment

	Importance	Current Ability
85. Establishes preventative measures against negligence	5 4 3 2 1 0	5 4 3 2 1 NA
86. Supervises a system of volunteer personnel	5 4 3 2 1 0	5 4 3 2 1 NA
87. Understands survey methods for program analysis	5 4 3 2 1 0	5 4 3 2 1 NA
88. Familiar with effective decision-making techniques in dealing with accidents	5 4 3 2 1 0	5 4 3 2 1 NA
89. Utilizes time management techniques	5 4 3 2 1 0	5 4 3 2 1 NA
90. Evaluates and documents program development	5 4 3 2 1 0	5 4 3 2 1 NA
91. Understands specific risks of sport activity	5 4 3 2 1 0	5 4 3 2 1 NA
92. Establishes supervisory control systems	5 4 3 2 1 0	5 4 3 2 1 NA
93. Develops promotional systems for recreational sports program	5 4 3 2 1 0	5 4 3 2 1 NA

Would you be interested in receiving an abstract of the completed study? yes no

COMMENTS:

Thank you for taking time to complete this questionnaire. Please return in the enclosed stamped, self-addressed envelope as soon as possible to:

Karen Regier; c/o Faculty of Human Kinetics, University of Windsor, Windsor, Ontario N9B 3P4

1. BACKGROUND INFORMATION

(for the Immediate Supervisor)

1. Job Title: _____

2. Number of years in present position _____

3. How long have you been the immediate supervisor of the current recreational sport administrator at your institution _____

4. If the answer to the preceding question is "less than one year", please do not complete Section 11, Competency Analysis. Return the entire questionnaire in the stamped, self-addressed envelope at your earliest convenience.

   Otherwise, please proceed to Section 11, Competency Analysis.

CODE _____

11. COMPETENCY ANALYSIS *(to be completed by the Immediate Supervisor)*

INSTRUCTIONS:
1. Read each statement carefully. Circle the number that indicates the degree of importance of the statement in the performance of the recreational sport administrator's position.
2. Re-read each statement. Circle the number that indicates your perception of the recreational sport administrator's current ability to perform the statement.

The following scales are described to assist in making appropriate choices.

Importance

5. -- Essential
4. -- Very Important
3. -- Important
2. -- Minimal Importance
1. -- Not Important
0. -- Important, but delegated to subordinates

Current Ability

5. -- Expert
4. -- Very Knowledgeable
3. -- Knowledgeable
2. -- Slightly Knowledgeable
1. -- Needs Improvement
NA -- No opinion; no assessment can be made

	Importance	Current Ability
	5 4 3 2 1 0	5 4 3 2 1 NA
1. Prepares and defends a budget proposal	5 4 3 2 1 0	5 4 3 2 1 NA
2. Coordinates interagency cooperation	5 4 3 2 1 0	5 4 3 2 1 NA
3. Comprehends design specifications of equipment and facilities	5 4 3 2 1 0	5 4 3 2 1 NA
4. Identifies and utilizes procedures to regulate the conduct of spectators and participants	5 4 3 2 1 0	5 4 3 2 1 NA
5. Comprehends legal implications in recreational sports	5 4 3 2 1 0	5 4 3 2 1 NA
6. Conducts staff meetings with program personnel	5 4 3 2 1 0	5 4 3 2 1 NA
7. Prepares sport rules and regulations	5 4 3 2 1 0	5 4 3 2 1 NA
8. Knows procedures for dealing with recognition of participants	5 4 3 2 1 0	5 4 3 2 1 NA

Appendix C

INTRODUCTORY COVER LETTERS

University of Windsor

May 30, 1986

Dear

The field of sport administration is rapidly expanding and it is imperative that educators keep abreast of the needs of the professionals. As a graduate student, I am involved in a research study concerned with the rating of management competencies and in turn determining the training which best meets the needs of recreational sport administrators.

This questionnaire is intended for the top administrator chiefly responsible for the recreational sports program (i.e., intramurals, recreation, clubs, non-credit instruction) at your institution. If this material has been directed to the wrong person, kindly forward the entire package to the appropriate individual immediately. My apologies for any inconvenience.

As the top administrator, your contribution to this study is valuable to future administrators. I understand that there are many demands on your time but, trust you will find satisfaction in knowing that you have helped to enhance the profession by completing this questionnaire. You may find its content interesting and helpful as well.

Enclosed are two copies of the questionnaire: 1. for yourself to complete (yellow copy) and; 2. for your immediate supervisor (i.e., Director of Student Services, Chairperson, Vice-President), the individual responsible for your evaluation. The questionnaire contains competency statements describing duties of recreational sport administrators and background questions to provide a profile on training. Please rate yourself as accurately as possible but, it is in no way an evaluation of your performance. All responses will be treated as confidential; analyzed and interpreted anonymously with no reference to the name of the respondent or institution.

I respectfully request that you forward the designated envelope to your immediate supervisor without delay. In addition, please complete and mail your questionnaire in the stamped, self-addressed envelope by June 14th, if at all possible.

Thank you in advance for your time and cooperation.

Sincerely

Karen A. Regier
c/o Faculty of Human Kinetics

Enclosures

401 Sunset Avenue, Windsor, Ontario, Canada N9B 3P4, 519/253-4232

University of Windsor

May 30, 1986

The field of sport administration is rapidly expanding and it is imperative that educators keep abreast of the needs of the professional management people. As a graduate student my research study is concerned with the rating of management competencies and in turn determining the training which best meets the needs of recreational sport administrators.

At each institution selected for the study, I am requesting the intramural recreation director, and the administrator who is responsible for his/her evaluation to participate.

The enclosed questionnaire features competency statements describing duties of recreational sport administrators. Your assistance is requested in completing the questionnaire. Specific concerns will be to determine, through your perception: 1. the degree of importance of each statement in the performance of intramural/recreation administrative duties, and 2. the current ability of the intramural recreation director to perform such duties. This is in no way an evaluation of the intramural recreation director's performance. All responses will be treated as confidential; analyzed and interpreted anonymously with no reference to the names of the respondent or institution.

Your cooperation in providing the requested information is vital to my research. The results of the survey will be valuable in determining the criteria that must be placed on the training, hiring and evaluation of such administrators.

Please take the time to complete this questionnaire and return it in the stamped, self-addressed envelope by June 14th, if possible. Your time and contribution to this study are greatly appreciated.

Sincerely

Karen A. Regier
c/o Faculty of Human Kinetics

Enclosures

401 Sunset Avenue, Windsor, Ontario, Canada N9B 3P4, 519/253-4232

Appendix D

ENDORSEMENT LETTERS

University of Windsor

May 30, 1986

Your assistance is kindly requested in a current research study being conducted by Ms. Karen Regier, one of our master of Human Kinetics candidates.

As you may note, the study is a survey involving intramural recreation directors and those to whom they report. Your participation in the research study is essential to its success. The information you provide will be valuable not only to Ms. Regier but, for the training of future recreational sport administrators.

We are aware of the time demands on administrators, however, we urge you to add to the body of knowledge in this expanding field by providing the information sought by Ms. Regier.

We appreciate your assistance.

Sincerely

Michael A. Salter, Ph.D.
Acting Dean
Faculty of Human Kinetics

Robert L. Boucher, Ph.D.
Associate Professor
Faculty of Human Kinetics

401 Sunset Avenue, Windsor, Ontario, Canada N9B 3P4, 519/253-4232

CANADIAN INTRAMURAL RECREATION ASSOCIATION
ASSOCIATION CANADIENNE DE LOISIRS INTRAMUROS

May 30, 1986

The Canadian Intramural Recreation Association (CIRA) has endorsed this research project being conducted by Ms. Karen Regier and would like to encourage your participation in completing the enclosed questionnaire. The information you provide will be valuable in determining the emphasis which should be placed on the training of future intramural recreation directors.

CIRA maintains an interest in developing and encouraging professional growth in the field. This project has been designed for those working in colleges and universities across Canada. Your cooperation is vital to the success of the survey.

Thank you for your continued support of CIRA endorsed projects.

Sincerely

Jim Weese, Chair
CIRA Research Committee

333 River Road, Vanier, Ontario K1L 8H9 (613) 748-5639

Appendix E

FOLLOW-UP MATERIAL

Just A Reminder!

Approximately two weeks ago you were sent a questionnaire entitled "Management Competency and Training", designed for recreational sport administrators employed in colleges and universities across Canada. At each institution the recreational sport administrator and his/her immediate supervisor were asked to participate.

I hope you will take a few minutes of your time to complete and return the questionnaire today. Please mail to: Karen A. Regier, c/o Faculty of Human Kinetics, University of Windsor, Windsor, Ontario N9B 3P4.

Thank you in advance for your cooperation.

Sincerely

Karen Regier

Karen A. Regier

University of Windsor

June 24, 1986

Dear Colleague:

In early June, 1986 you were mailed a questionnaire entitled "Management Competency and Training" of recreational sport administrators. At each institution the recreational sport administrator and his/her immediate supervisor were asked to participate. In reviewing the responses I see that I have not yet received yours. If for some reason your questionnaire has been misplaced, a duplicate copy is enclosed for your review.

The questionnaire features competency statements describing duties of recreational sport administrators. The information requested will be valuable in determining the criteria which must be placed on the training, hiring and evaluation of such administrators.

I realize that there are many demands on your time and that due to previous commitments you have not had the opportunity to complete and return the questionnaire to me. The success of the survey however, is dependent upon your response.

If you have recently mailed your survey, my sincere thanks. If not, I ask that you please take a few minutes of your time to complete and return the questionnaire at your earliest convenience. I would greatly appreciate your response before you depart for summer vacation, if at all possible.

Since you were my initial contact, I respectfully request that you forward the designated envelope to your immediate supervisor without delay.

Thank you again for your time and cooperation.

Sincerely

Karen A. Regier
c/o Faculty of Human Kinetics

Enclosures

401 Sunset Avenue, Windsor, Ontario, Canada N9B 3P4, 519/253-4232

University of Windsor

June 24, 1986

In early June, 1986 a questionnaire entitled "Management Competency and Training" of recreational sport administrators was mailed to you via the recreational sport administrator at your institution. At each institution the recreational sport administrator and his/her immediate supervisor were asked to participate. In reviewing the responses I see that I have not yet received yours. If for some reason your questionnaire has been misplaced, a duplicate copy is enclosed for your review.

The questionnaire features competency statements describing duties of recreational sport administrators. The information requested will be valuable in determining the criteria which must be placed on the training, hiring and evaluation of such administrators.

I realize that there are many demands on your time and that due to previous commitments you have not had the opportunity to complete and return the questionnaire to me. The success of the survey however, is dependent upon your response.

If you have recently mailed your survey, my sincere thanks. If not, I ask that you please take a few minutes of your time to complete and return the questionnaire at your earliest convenience. I would greatly appreciate your response before you depart for summer vacation, if at all possible.

Thank you again for your time and cooperation.

Sincerely

Karen A. Regier
c/o Faculty of Human Kinetics

Enclosures

401 Sunset Avenue, Windsor, Ontario, Canada N9B 3P4, 519/253-4232

Appendix F

ITEMIZED LIST OF COMPETENCY STATEMENTS

1. Prepares and defends a budget proposal
2. Coordinates interagency cooperation
3. Comprehends design specifications of equipment and facilities
4. Identifies and utilizes procedures to regulate the conduct of spectators and participants
5. Comprehends legal implications in recreational sports
6. Conducts staff meetings with program personnel
7. Prepares sport rules and regulations
8. Knows procedures for dealing with recognition of participants
9. Applies statistical tools to program evaluation, financial analysis and planning
10. Understands the effect of recreational sports on stress increase/ reduction
11. Knows basic bookkeeping procedures
12. Maintains effective communications with staff
13. Knowledge of administration of a facility reservation system
14. Conducts investigations on disciplinary action, accidents, game protests and eligibility status reports
15. Establishes procedures reflecting fair treatment of staff and participants
16. Demonstrates knowledge of organizational theory and behaviour
17. Recruits and evaluates officials
18. Constructs problems appropriate to recreational sports research
19. Relates accident trends to elimination of hazards
20. Recognizes aggression patterns of participants

21. Applies purchasing policies and procedures
22. Identifies and applies equal opportunity guidelines to personnel and program
23. Evaluates full-time personnel for appointment, promotion, leave and termination
24. Consults on sports programming and facilities
25. Develops and maintains procedures for postponements and rescheduling
26. Demonstrates creative writing through articles, reports, newsletters
27. Recognizes certain medical considerations in exercise
28. Develops supervisory techniques to avoid accidents
29. Identifies sources of income for budget
30. Identifies and encourages participants for programs
31. Develops and maintains planning schedules for improvement, construction and maintenance of facilities
32. Recognizes program needs in facility design
33. Establishes due process for dealing with program concerns
34. Utilizes effective decision-making skills
35. Evaluates part-time personnel for changes in status
36. Organizes and conducts clinics for officials
37. Understands leadership techniques operational in recreational sports
38. Demonstrates ability to schedule tournaments, leagues and meets
39. Knows existing research in recreational sports
40. Posesses necessary certification in first aid and cardiopulmonary resuscitation
41. Processes contractual agreements
42. Develops and maintains procedures for dealing with forfeiture of games
43. Prepares organizational guidelines for staffing and programming
44. Adapts programs to the special needs of the handicapped
45. Develops and maintains standards of performance for program operations
46. Develops publicity approaches for advertisement
47. Conducts routine inspections of facilities and equipment

48. Establishes and maintains eligibility guidelines for participants

49. Identifies and applies guidelines of legislation involving accessibility for the handicapped

50. Implements planning strategies for program

51. Prepares administrative guidelines for programming

52. Prepares officiating procedures not covered in rules

53. Understands symptoms of injuries

54. Understands the broad spectrum of recreational sports opportunities

55. Understands organizational and operational aspects of various types of sports programming

56. Develops and analyzes recreational sports aspects of program participation statistics

57. Knows levels of competition in sport

58. Examines and analyzes the budget

59. Maintains effective communications with public

60. Develops maintenance planning for facilities and equipment

61. Demonstrates ability to organize a governing or appeals board

62. Prepares and reviews committee, program and informational reports

63. Knows basic recreational sports terminology

64. Consults on sport programming and facilities

65. Ensures safety through equipment maintenance

66. Recognizes individual differences in exercises

67. Initiates effective office procedures to handle registrations, reports, notices, etc.

68. Prepares and develops public presentations

69. Conducts inventory and storage of supplies

70. Understands procedures for settling protests

71. Schedules part-time employees for work

72. Develops and conducts sports clinics

73. Demonstrates methods of securing participation involvement in leadership roles

74. Prepares financial reports
75. Consults and advises student leaders
76. Participates in short and long range facility development
77. Prepares written documentation of cases dealing with protests
78. Conducts visitations of other programs and facilities
79. Understands the theories of cooperative and competitive play
80. Knows measuring instruments appropriate to statistical analysis
81. Recognizes various factors that lead to accidents and injury
82. Prepares reports for accidents, disciplinary action, protests, complaints, etc.
83. Reports maintenance needs of facilities and equipment
84. Counsels and supervises governing or appeals board
85. Establishes preventative measures against negligence
86. Supervises a system of volunteer personnel
87. Understands survey methods for program analysis
88. Familiar with effective decision-making techniques in dealing with accidents
89. Utilizes time management techniques
90. Evaluates and documents program development
91. Understands specific risks of sport activity
92. Establishes supervisory control systems
93. Develops promotional systems for recreational sports program

Appendix G

LISTING OF COMPETENCIES FOR IMPORTANCE AND PERFORMANCE FACTORS

Importance Dimensions

Factor 1

7. Prepares sport rules and regulations

14. Conducts investigations on disciplinary action, accidents, game protests and eligibility status reports

25. Develops and maintains procedures for postponements and rescheduling

38. Demonstrates ability to schedule tournaments, leagues and meets

42. Develops and maintains procedures for dealing with forfeiture of games

48. Establishes and maintains eligibility guidelines for participants

52. Prepares officiating procedures not covered in rules

70. Understands procedures for settling protests

77. Prepares written documentation of cases dealing with protests

82. Prepares reports for accidents, disciplinary action, protests, complaints, etc.

84. Counsels and supervises governing or appeals board

Factor 2

1. Prepares and defends a budget proposal

29. Identifies sources of income for budget

58. Examines and analyzes the budget

74. Prepares financial reports

Factor 3

54. Understands the broad spectrum of recreational sports opportunities

55. Understands organizational and operational aspects of various types of sports programming

57. Knows levels of competition in sport

Factor 4

46. Develops publicity approaches for advertisement

50. Implements planning strategies for program

75. Consults and advises student leaders

93. Develops promotional systems for recreational sports program

Factor 5

10. Understands the effect of recreational sports on stress increase/reduction

40. Possesses necessary certification in first aid and cardiopulmonary resuscitation

53. Understands symptoms of injuries

66. Recognizes individual differences in exercises

81. Recognizes various factors that lead to accidents and injury

Factor 6

31. Develops and maintains planning schedules for improvement, construction and maintenance of facilities

47. Conducts routine inspections of facilities and equipment

60. Develops maintenance planning for facilities and equipment

65. Ensures safety through equipment maintenance

Performance Dimensions

Factor 7

24. Consults on sports programming and facilities

31. Develops and maintains planning schedules for improvement, construction and maintenance of facilities

47. Conducts routine inspections of facilities and equipment

60. Develops maintenance planning for facilities and equipment

65. Ensures safety through equipment maintenance

69. Conducts inventory and storage of supplies

76. Participates in short and long range facility development

83. Reports maintenance needs of facilities and equipment

85. Establishes preventative measures against negligence

Factor 8

27. Recognizes certain medical considerations in exercise

28. Develops supervisory techniques to avoid accidents

53. Understands symptoms of injuries

66. Recognizes individual differences in exercises

81. Recognizes various factors that lead to accidents and injury

91. Understands specific risks of sport activity

Factor 9

9. Applies statistical tools to program evaluation, financial analysis and planning

18. Constructs problems appropriate to recreational sports research

39. Knows existing research in recreational sports

49. Identifies and applies guidelines of legislation involving accessibility for the handicapped

56. Develops and analyzes recreational sports aspects of program participation statistics

80. Knows measuring instruments appropriate to statistical analysis

87. Understands survey methods for program analysis

Factor 10

7. Prepares sport rules and regulations

14. Conducts investigations on disciplinary action, accidents, game protests and eligibility status reports

42. Develops and maintains procedures for dealing with forfeiture of games

48. Establishes and maintains eligibility guidelines for participants

Factor 11

61. Demonstrates ability to organize a governing or appeals board

62. Prepares and reviews committee, program and informational reports

77. Prepares written documentation of cases dealing with protests

84. Counsels and supervises governing or appeals board

Factor 12

6. Conducts staff meetings with program personnel

12. Maintains effective communications with staff

17. Recruits and evaluates officials

Factor 13

59. Maintains effective communications with public

68. Prepares and develops public presentations

78. Conducts visitations of other programs and facilities

Appendix H

ITEM BY DIMENSION LISTING OF MANAGEMENT COMPETENCIES USED IN ANALYSES

1.Procedural Dimension

7. Prepares sport rules and regulations

14. Conducts investigations on disciplinary action, accidents, game protests and eligibility status reports

25. Develops and maintains procedures for postponements and rescheduling

42. Develops and maintains procedures for dealing with forfeiture of games

48. Establishes and maintains eligibility guidelines for participants

52. Prepares officiating procedures not covered in rules

70. Understands procedures for settling protests

77. Prepares written documentation of cases dealing with protests

82. Prepares reports for accidents, disciplinary action, protests, complaints, etc.

84. Counsels and supervises governing or appeals board

2.Fiscal Dimension

1. Prepares and defends a budget proposal

29. Identifies sources of income for budget

58. Examines and analyzes the budget

74. Prepares financial reports

3.Conceptual Dimension

54. Understands the broad spectrum of recreational sports opportunities

55. Understands organizational and operational aspects of various types of sports programming

57. Knows levels of competition in sport

4.Communication Dimension

46. Develops publicity approaches for advertisement

50. Implements planning strategies for program

75. Consults and advises student leaders

93. Develops promotional systems for recreational sports program

5.Health and Safety Dimension

10. Understands the effect of recreational sports on stress increase/reduction

40. Possesses necessary certification in first aid and cardiopulmonary resuscitation

53. Understands symptoms of injuries

66. Recognizes individual differences in exercises

81. Recognizes various factors that lead to accidents and injury

6.Facility Management Dimension

31. Develops and maintains planning schedules for improvement, construction and maintenance of facilities

47. Conducts routine inspections of facilities and equipment

60. Develops maintenance planning for facilities and equipment

65. Ensures safety through equipment maintenance

Appendix I

TABLES

I.1 Means and Standard Deviations for Competency Importance and Performance Items

Importance				Performance			
Variable	*M*	*SD*	*N*	Variable	*M*	*SD*	*N*
I1	3.833	1.240	114	P1	3.582	.806	110
I2	3.447	1.082	114	P2	3.505	.817	107
I3	3.088	1.118	114	P3	3.299	.860	107
I4	3.395	1.252	114	P4	3.590	.767	100
I5	3.860	1.128	114	P5	3.136	1.000	110
I6	3.965	1.080	114	P6	3.861	.814	108
I7	3.798	1.298	114	P7	3.892	.878	111
I8	3.746	1.158	114	P8	3.782	.828	110
I9	2.974	1.132	114	P9	2.822	1.033	101
I10	3.456	1.023	114	P10	3.345	.913	110
I11	3.158	1.126	114	P11	3.106	.985	104
I12	4.518	.694	114	P12	3.947	.818	114
I13	3.377	1.208	114	P13	3.680	.952	100
I14	3.746	1.240	114	P14	3.700	.863	110
I15	3.754	1.094	114	P15	3.557	.782	106
I16	3.518	.998	114	P16	3.321	.870	109
I17	3.070	1.348	114	P17	3.263	.910	99
I18	2.009	1.035	114	P18	2.456	1.028	68
I19	3.491	1.131	114	P19	3.257	.832	105
I20	3.105	1.116	114	P20	3.253	.861	99
I21	3.368	1.292	114	P21	3.465	1.025	101
I22	3.491	1.192	114	P22	3.475	.769	101
I23	2.404	1.527	114	P23	3.018	1.114	55
I24	3.553	1.098	114	P24	3.611	.884	108
I25	3.561	1.129	114	P25	3.697	.811	109
I26	2.982	1.212	114	P26	3.021	1.133	96
I27	3.579	1.128	114	P27	3.377	1.018	106
I28	3.675	1.148	114	P28	3.408	.890	103
I29	3.325	1.405	114	P29	3.495	.842	93
I30	4.184	.898	114	P30	3.746	.839	114
I31	2.658	1.394	114	P31	3.304	.925	79
I32	3.088	1.259	114	P32	3.247	.957	89
I33	3.395	1.061	114	P33	3.171	.802	105
I34	4.105	.768	114	P34	3.482	.812	114
I35	2.816	1.436	114	P35	3.418	.900	79
I36	2.816	1.399	114	P36	3.060	1.101	84
I37	3.781	.860	114	P37	3.442	.916	113
I38	3.974	1.251	114	P38	4.257	.907	109
I39	3.123	.961	114	P39	2.604	1.057	106
I40	3.588	1.282	114	P40	3.144	1.273	104

(*continued next page*)

Means and Standard Deviations for Competency Importance and Performance Items (continued)

Importance				Performance			
Variable	*M*	*SD*	*N*	Variable	*M*	*SD*	*N*
I41	2.553	1.290	114	P41	3.156	.974	77
I42	3.316	1.264	114	P42	3.699	.895	103
I43	3.412	1.240	114	P43	3.442	.847	95
I44	2.772	1.183	114	P44	2.333	1.064	87
I45	3.386	1.109	114	P45	3.317	.747	101
I46	3.570	1.255	114	P46	3.433	.833	104
I47	3.167	1.426	114	P47	3.463	.920	95
I48	3.491	1.278	114	P48	3.713	.753	101
I49	2.412	1.295	114	P49	2.310	1.050	71
I50	3.553	1.073	114	P50	3.355	.838	107
I51	3.421	1.088	114	P51	3.327	.769	104
I52	3.202	1.176	114	P52	3.327	.873	101
I53	3.360	1.161	114	P53	3.250	.973	104
I54	3.675	1.009	114	P54	3.550	.976	109
I55	3.640	.932	114	P55	3.450	.988	111
I56	3.298	1.021	114	P56	3.163	.904	104
I57	3.596	.957	114	P57	3.804	.826	112
I58	3.649	1.234	114	P58	3.569	.873	102
I59	3.789	1.109	114	P59	3.538	.902	104
I60	2.561	1.439	114	P60	3.408	.803	71
I61	2.798	1.213	114	P61	3.057	.914	88
I62	3.061	1.199	114	P62	3.129	.863	93
I63	3.588	.910	114	P63	3.833	.819	114
I64	3.272	1.083	114	P64	3.500	.788	104
I65	3.316	1.495	114	P65	3.573	.830	96
I66	3.465	1.066	114	P66	3.462	.886	106
I67	3.772	1.097	114	P67	3.602	.917	108
I68	2.982	1.234	114	P68	3.124	.960	97
I69	2.816	1.393	114	P69	3.523	.773	88
I70	3.465	1.099	114	P70	3.509	.916	110
I71	3.026	1.454	114	P71	3.620	.837	92
I72	2.526	1.271	114	P72	3.106	1.024	85
I73	3.526	.989	114	P73	3.213	.887	108
I74	3.088	1.424	114	P74	3.315	.874	89
I75	4.053	.994	114	P75	3.800	.810	110
I76	3.140	1.240	114	P76	3.362	.866	94
I77	2.711	1.225	114	P77	3.174	.859	92
I78	2.807	1.261	114	P78	3.046	.999	87
I79	3.439	1.056	114	P79	3.435	.920	108
I80	2.649	1.064	114	P80	2.582	1.064	98

(*continued next page*)

Means and Standard Deviations for Competency Importance and Performance Items (continued)

Importance				Performance			
Variable	*M*	*SD*	*N*	Variable	*M*	*SD*	*N*
I81	3.728	.943	114	P81	3.459	.882	111
I82	3.333	1.150	114	P82	3.337	.899	104
I83	3.342	1.323	114	P83	3.606	.806	99
I84	2.658	1.309	114	P84	3.250	.819	76
I85	3.675	1.179	114	P85	3.259	.951	108
I86	3.518	1.409	114	P86	3.520	.948	100
I87	3.088	1.085	114	P87	2.824	1.094	102
I88	3.596	.975	114	P88	3.259	1.053	108
I89	3.605	.965	114	P89	3.018	1.036	111
I90	3.605	1.044	114	P90	3.181	.978	105
I91	3.737	.951	114	P91	3.486	.883	111
I92	3.386	1.148	114	P92	3.390	.815	100
I93	3.816	1.102	114	P93	3.429	.886	105

I.2 Importance Factors - Selected Items and Factor Loadings

Item	Factors						
	1	2	3	4	5	6	7
42	.83						
07	.77						
25	.72						
52	.69						
14	.67						
70	.66						
77	.64						
38	.60						
84	.59						
48	.58						
82	.58						
58		.81					
01		.79					
74		.76					
29		.55					
54			.75				
55			.74				
57			.69				
46				.67			
93				.67			
75				.60			
50				.58			
40					.77		
53					.68		
81					.60		
66					.59		
10					.58		
60						.84	
65						.82	
47						.70	
31						.57	
18							.73
26							.59

I.3 Importance - Factor Extraction and Explained Variance

Factor	Eigenvalue	Variance (%)	Accum. Total (%)
1	27.60	29.7	29.7
2	5.98	6.4	36.1
3	4.19	4.5	40.6
4	3.59	3.9	44.5
5	3.14	3.4	47.8
6	3.00	3.2	51.1
7	2.38	2.6	53.6
8	2.37	2.5	56.2
9	2.09	2.2	58.4
10	1.86	2.0	60.4
11	1.75	1.9	62.3
12	1.74	1.9	64.2
13	1.59	1.7	65.9
14	1.47	1.6	67.5
15	1.43	1.5	69.0
16	1.35	1.5	70.4
17	1.26	1.4	71.8
18	1.24	1.3	73.1
19	1.18	1.3	74.4
20	1.16	1.2	75.6
21	1.05	1.1	76.8
22	1.03	1.1	77.9

I.4 Performance Factors - Selected Items and Factor Loadings

Item	Factors								
	1	2	3	4	5	6	7	8	9
31	.80								
47	.75								
60	.71								
83	.68								
65	.62								
24	.56								
85	.56								
76	.55								
53		.84							
27		.81							
66		.74							
81		.68							
91		.57							
28		.56							
18			.82						
80			.71						
49			.63						
56			.61						
87			.61						
09			.61						
39			.59						
42				.79					
48				.77					
07				.63					
14				.56					
63					.76				
84						.82			
61						.66			
62						.60			
77						.55			
45							.77		
50							.69		
12								.72	
06								.70	
17								.56	
68									.67
59									.63
78									.56
69	.56								

I.5 Performance - Factor Extraction and Explained Variance

Factor	Eigenvalue	Variance (%)	Accum. Total (%)
1	32.05	34.5	34.5
2	4.76	5.1	39.6
3	4.09	4.4	44.0
4	3.98	4.3	48.2
5	3.37	3.6	51.9
6	2.72	2.9	54.8
7	2.56	2.8	57.5
8	2.08	2.2	59.8
9	2.05	2.2	62.0
10	1.98	2.1	64.1
11	1.76	1.9	66.0
12	1.73	1.9	67.9
13	1.66	1.8	69.7
14	1.55	1.7	71.3
15	1.48	1.6	72.9
16	1.34	1.4	74.4
17	1.33	1.4	75.8
18	1.29	1.4	77.2
19	1.20	1.3	78.5
20	1.15	1.2	79.7
21	1.12	1.2	80.9
22	1.06	1.1	82.0
23	1.03	1.1	83.2
24	1.02	1.1	84.3

I.6 Item-Dimension Correlation Coefficients

(Dimension) Item	Dimensions* 1	2	3	4	5	6
IMPORTANCE						
(1)	*n*=113					
42	**.85**	.07	.43	.50	.35	.28
77	**.79**	.20	.50	.46	.35	.31
48	**.75**	.29	.47	.57	.41	.25
52	**.78**	.13	.33	.49	.40	.33
70	**.82**	.17	.55	.55	.44	.28
84	**.66**	.37	.35	.37	.20	.17
07	**.73**	.03	.23	.33	.35	.22
14	**.75**	.23	.33	.42	.33	.25
25	**.78**	.12	.38	.44	.47	.31
82	**.72**	.08	.44	.40	.43	.30
(2)		*n*=113				
58	.16	**.86**	.28	.38	.20	.22
01	.00	**.79**	.14	.15	-.07	-.00
74	.36	**.83**	.25	.46	.17	.24
29	.16	**.73**	.04	.21	.20	.16
(3)			*n*=113			
54	.44	.20	**.89**	.50	.38	.28
55	.49	.22	**.90**	.51	.40	.32
57	.42	.15	**.80**	.38	.40	.25
(4)				*n*=113		
93	.45	.31	.42	**.88**	.36	.10
46	.48	.38	.44	**.87**	.37	.18
75	.42	.27	.30	**.72**	.29	.19
50	.59	.26	.59	**.80**	.43	.26
(5)					*n*=113	
40	.34	.10	.15	.33	**.79**	.23
53	.33	.11	.27	.28	**.81**	.36
10	.36	.23	.43	.37	**.69**	.21
66	.43	.06	.56	.35	**.81**	.43
81	.45	.14	.43	.43	**.79**	.37
(6)						*n*=113
60	.23	.18	.33	.18	.31	**.86**
47	.43	.12	.35	.29	.40	**.80**
65	.28	.02	.22	.17	.38	**.84**
31	.21	.33	.16	.08	.22	**.75**

(continued next page)

Item-Dimension Correlation Coefficients (continued)

(Dimension) Item	Dimensions* 1	2	3	4	5	6
PERFORMANCE						
(1)	*n*=68					
42	**.82**	.24	.51	.36	.18	.49
77	**.66**	.37	.42	.23	.18	.40
48	**.76**	.10	.45	.35	.17	.41
52	**.62**	-.04	.31	.27	.36	.19
70	**.84**	.38	.58	.45	.16	.42
84	**.67**	.49	.41	.21	.04	.27
07	**.59**	.19	.35	.24	.23	.22
14	**.80**	.32	.55	.43	.37	.43
25	**.73**	.37	.58	.45	.23	.53
82	**.84**	.19	.48	.36	.40	.29
(2)		*n*=77				
58	.35	**.86**	.41	.39	-.07	.66
01	.19	**.63**	.27	.37	-.04	.41
74	.33	**.81**	.32	.26	-.14	.66
29	.28	**.74**	.20	.25	.19	.29
(3)			*n*=106			
54	.44	.39	**.83**	.59	.19	.47
55	.49	.30	**.89**	.64	.40	.39
57	.62	.19	**.77**	.46	.26	.52
(4)				*n*=97		
93	.50	.38	.57	**.80**	.20	.55
46	.41	.06	.53	**.79**	.31	.46
75	.16	.36	.44	**.60**	.18	.53
50	.33	.28	.46	**.70**	.27	.28
(5)					*n*=93	
40	-.00	-.12	.07	.19	**.67**	.17
53	.33	-.00	.22	.20	**.86**	-.04
10	.29	.18	.36	.26	**.68**	.12
66	.44	.19	.39	.26	**.73**	.22
81	.54	.20	.46	.39	**.75**	.36
(6)						*n*=62
60	.44	.67	.47	.56	.08	**.89**
47	.36	.54	.45	.45	.23	**.87**
65	.48	.39	.54	.46	.37	**.83**
31	.37	.51	.38	.39	.15	**.85**

Note.

* Dimensions are as follows:

1. Procedural
2. Fiscal
3. Conceptual
4. Communication
5. Health & Safety
6. Facility Management

$p < .01$

I.7 Importance - Within Cells Correlations With Standard Deviations on Diagonal

	Dimensions					
Dimension	**1**	**2**	**3**	**4**	**5**	**6**
1.Procedural	.93					
2.Fiscal	.22	1.05				
3.Conceptual	.52	.22	.83			
4.Communication	.59	.38	.54	.90		
5.Health & Safety	.48	.16	.45	.44	.85	
6.Facility Management	.35	.20	.32	.22	.41	1.17

I.8 Importance - Prior x Years x Position Multivariate Tests of Significance

Test	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Prior x Years x Position					
Pillais	.04	.72	6.00	99.00	.63
Hotellings	.04	.72	6.00	99.00	.63
Wilks	.96	.72	6.00	99.00	.63
Years x Position					
Pillais	.05	.92	6.00	99.00	.49
Hotellings	.06	.92	6.00	99.00	.49
Wilks	.95	.92	6.00	99.00	.49
Prior x Position					
Pillais	.06	.99	6.00	99.00	.44
Hotellings	.06	.99	6.00	99.00	.44
Wilks	.94	.99	6.00	99.00	.44
Prior x Years					
Pillais	.04	.63	6.00	99.00	.71
Hotellings	.04	.63	6.00	99.00	.71
Wilks	.96	.63	6.00	99.00	.71
Position					
Pillais	.02	.31	6.00	99.00	.93
Hotellings	.02	.31	6.00	99.00	.93
Wilks	.98	.31	6.00	99.00	.93
Years					
Pillais	.07	1.20	6.00	99.00	.31
Hotellings	.07	1.20	6.00	99.00	.31
Wilks	.93	1.20	6.00	99.00	.31
Prior					
Pillais	.04	.71	6.00	99.00	.64
Hotellings	.04	.71	6.00	99.00	.64
Wilks	.95	.71	6.00	99.00	.64

$p \geq .10$

I.9 Importance - Prior x Years x Position Univariate F-Tests

Variable	*DF*	*F*	Sig. of *F*
1.Procedural	1,104	1.62	.21
2.Fiscal	1,104	.00	.95
3.Conceptual	1,104	.33	.57
4.Communication	1,104	.09	.77
5.Health & Safety	1,104	.16	.69
6.Facility Management	1,104	.09	.77

p ≥ .10

I.10 Importance - Prior x Years x Position First-Order Interactions Univariate F-Tests

Variable	DF	F	Sig. of F
Years x Position			
1.Procedural	1,104	1.38	.24
2.Fiscal	1,104	1.69	.20
3.Conceptual	1,104	.01	.92
4.Communication	1,104	2.37	.13
5.Health & Safety	1,104	.84	.36
6.Facility Management	1,104	1.33	.25
Prior x Position			
1.Procedural	1,104	.32	.57
2.Fiscal	1,104	1.49	.23
3.Conceptual	1,104	.45	.50
4.Communication	1,104	.27	.61
5.Health & Safety	1,104	.07	.79
6.Facility Management	1,104	.97	.33
Prior x Years			
1.Procedural	1,104	.27	.61
2.Fiscal	1,104	.15	.70
3.Conceptual	1,104	1.49	.23
4.Communication	1,104	.01	.91
5.Health & Safety	1,104	.05	.82
6.Facility Management	1,104	.33	.57

$p \geq .10$

I.11 Importance - Education x Years x Position Multivariate Tests of Significance

Test	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Education x Years x Position					
Pillais	.01	.24	6.00	96.00	.96
Hotellings	.02	.24	6.00	96.00	.96
Wilks	.99	.24	6.00	96.00	.96
Years x Position					
Pillais	.04	.59	6.00	96.00	.74
Hotellings	.04	.59	6.00	96.00	.74
Wilks	.96	.59	6.00	96.00	.74
Education x Position					
Pillais	.05	.80	6.00	96.00	.57
Hotellings	.05	.80	6.00	96.00	.57
Wilks	.95	.80	6.00	96.00	.57
Education x Years					
Pillais	.03	.47	6.00	96.00	.83
Hotellings	.03	.47	6.00	96.00	.83
Wilks	.97	.47	6.00	96.00	.83
Position					
Pillais	.03	.48	6.00	96.00	.82
Hotellings	.03	.48	6.00	96.00	.82
Wilks	.97	.48	6.00	96.00	.82
Years					
Pillais	.10	1.78	6.00	96.00	.11
Hotellings	.11	1.78	6.00	96.00	.11
Wilks	.90	1.78	6.00	96.00	.11
Education					
Pillais	.07	1.20	6.00	96.00	.31
Hotellings	.08	1.20	6.00	96.00	.31
Wilks	.93	1.20	6.00	96.00	.31

$p \geq .10$

I.12 Importance - Education x Years x Position Univariate F-Tests

Variable	DF	F	Sig. of F
1.Procedural	1,101	.10	.76
2.Fiscal	1,101	.00	.96
3.Conceptual	1,101	.04	.85
4.Communication	1,101	.43	.51
5.Health & Safety	1,101	.05	.83
6.Facility Management	1,101	.13	.71

$p \geq .10$

I.13 Importance - Education x Years x Position First-Order Interactions Univariate F-Tests

Variable	DF	F	Sig. of F
Years x Position			
1.Procedural	1,101	1.41	.24
2.Fiscal	1,101	1.85	.18
3.Conceptual	1,101	.01	.94
4.Communication	1,101	.75	.39
5.Health & Safety	1,101	.29	.59
6.Facility Management	1,101	.30	.58
Education x Position			
1.Procedural	1,101	.07	.79
2.Fiscal	1,101	2.18	.14
3.Conceptual	1,101	.00	.97
4.Communication	1,101	.00	.97
5.Health & Safety	1,101	1.45	.23
6.Facility Management	1,101	.48	.49
Education x Years			
1.Procedural	1,101	.40	.53
2.Fiscal	1,101	.00	.99
3.Conceptual	1,101	.24	.62
4.Communication	1,101	.05	.82
5.Health & Safety	1,101	.15	.70
6.Facility Management	1,101	1.14	.29

$p \geq .10$

I.14 Importance - Specialization x Years x Position Multivariate Tests of Significance

Test	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Specialization x Years x Position					
Pillais	.08	.64	12.00	192.00	.81
Hotellings	.08	.63	12.00	188.00	.82
Wilks	.92	.63	12.00	190.00	.81
Years x Position					
Pillais	.04	.64	6.00	95.00	.70
Hotellings	.04	.64	6.00	95.00	.70
Wilks	.96	.64	6.00	95.00	.70
Specialization x Position					
Pillais	.08	.67	12.00	192.00	.56
Hotellings	.09	.67	12.00	188.00	.57
Wilks	.92	.67	12.00	190.00	.57
Specialization x Years					
Pillais	.11	.89	12.00	192.00	.56
Hotellings	.11	.88	12.00	188.00	.57
Wilks	.90	.88	12.00	190.00	.57
Position					
Pillais	.02	.35	6.00	95.00	.91
Hotellings	.02	.35	6.00	95.00	.91
Wilks	.98	.35	6.00	95.00	.91
Years					
Pillais	.07	1.21	6.00	95.00	.31
Hotellings	.08	1.21	6.00	95.00	.31
Wilks	.93	1.21	6.00	95.00	.31
Specialization					
Pillais	.16	1.44	12.00	192.00	.15
Hotellings	.18	1.41	12.00	188.00	.17
Wilks	.84	1.42	12.00	190.00	.16

$p \geq .10$

I.15 Importance - Specialization x Years x Position Univariate F-Tests

Variable	DF	F	Sig. of F
Specialization x Years x Position			
1.Procedural	2,100	1.04	.36
2.Fiscal	2,100	.20	.82
3.Conceptual	2,100	.54	.58
4.Communication	2,100	1.14	.32
5.Health & Safety	2,100	.93	.40
6.Facility Management	2,100	1.36	.26
Years x Position			
1.Procedural	1,100	.72	.40
2.Fiscal	1,100	1.01	.32
3.Conceptual	1,100	.00	.99
4.Communication	1,100	2.68	.10
5.Health & Safety	1,100	.21	.65
6.Facility Management	1,100	.06	.80
Specialization x Position			
1.Procedural	2,100	.30	.75
2.Fiscal	2,100	.25	.78
3.Conceptual	2,100	.04	.96
4.Communication	2,100	1.11	.34
5.Health & Safety	2,100	.59	.56
6.Facility Management	2,100	.26	.77
Specialization x Years			
1.Procedural	2,100	.50	.61
2.Fiscal	2,100	.39	.68
3.Conceptual	2,100	.68	.51
4.Communication	2,100	1.03	.36
5.Health & Safety	2,100	.44	.65
6.Facility Management	2,100	1.27	.29

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Importance - Specialization x Years x Position Univariate F-Tests (continued)

Variable	DF	F	Sig. of F
Position			
1.Procedural	1,100	.49	.48
2.Fiscal	1,100	.25	.62
3.Conceptual	1,100	.28	.60
4.Communication	1,100	.86	.36
5.Health & Safety	1,100	.05	.82
6.Facility Management	1,100	1.32	.25
Years			
1.Procedural	1,100	1.21	.27
2.Fiscal	1,100	1.85	.18
3.Conceptual	1,100	.33	.57
4.Communication	1,100	.34	.56
5.Health & Safety	1,100	.94	.33
6.Facility Management	1,100	.96	.33
Specialization			
1.Procedural	2,100	.68	.51
2.Fiscal	2,100	.23	.79
3.Conceptual	2,100	.05	.96
4.Communication	2,100	1.52	.23
5.Health & Safety	2,100	1.58	.21
6.Facility Management	2,100	1.39	.26

$p \geq .10$

I.16 Performance - Simple Effects Analysis of Variance for Prior x Dimension 1

Source of Variation	*DF*	Sum of Squares	Mean Squares	*F*	Sig. of *F*
(*Position=1, Years=1*)					
Between	1	.95	.95	2.33	.15
Within	17	6.97	.41		
Total	18	7.93			
(*Position=1, Years=2*)					
Between	1	.00	.00	.00	.95
Within	19	5.93	.31		
Total	20	5.93			
(*Position=2, Years=1*)					
Between	1	.28	.28	.86	.38
Within	9	2.92	.32		
Total	10	3.20			
(*Position=2, Years=2*)					
Between	1	.21	.21	.57	.46
Within	14	5.26	.38		
Total	15	5.47			

p ≥ .10

I.17 Performance - Simple Effects Analysis of Variance for Position x Dimension 1

Source of Variation	DF	Sum of Squares	Mean Squares	F	Sig. of F
(Years=1, Prior=1)					
Between	1	.88	.88	2.23	.15
Within	22	8.70	.40		
Total	23	9.58			
(Years=1, Prior=2)					
Between	1	.48	.48	1.61	.27
Within	4	1.99	.30		
Total	5	1.68			
(Years=2, Prior=1)					
Between	1	.77	.77	2.21	.15
Within	20	6.93	.35		
Total	21	7.70			
(Years=2, Prior=2)					
Between	1	.10	.10	.30	.59
Within	13	4.26	.33		
Total	14	4.36			

$p \geq .10$

I.18 Performance - Prior x Years x Position Univariate F-Tests for Dimension 5

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Prior	.00	1	.00	.00	.98
Years	.01	1	.01	.03	.87
Position	.15	1	.15	.29	.59
Prior x Years	.87	1	.87	1.66	.20
Prior x Position	.09	1	.09	.17	.68
Years x Position	.40	1	.40	.76	.39
Prior x Years x Position	.11	1	.11	.21	.65
Within Groups	44.06	84	.53		
Total	45.91	91	.51		

$p \geq .10$

I.19 Performance - Prior x Years x Position Univariate F-Tests for Dimension 6

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Prior	.79	1	.79	1.50	.23
Years	.30	1	.30	.58	.45
Position	.46	1	.46	.88	.35
Prior x Years	.11	1	.11	.21	.65
Prior x Position	.79	1	.79	1.49	.23
Years x Position	.01	1	.01	.02	.90
Prior x Years x Position	.36	1	.36	.68	.41
Within Groups	27.89	53	.53		
Total	31.14	60	.52		

$p \geq .10$

I.20 *Performance - Simple Effects Analysis of Variance for Position x Dimension 1*

Source of Variation	*DF*	Sum of Squares	Mean Squares	*F*	Sig. of *F*
(Years=1)					
Between	1	.31	.31	.78	.38
Within	28	11.13	.40		
Total	29	11.44			
(Years=2)					
Between	1	.73	.73	2.24	.14
Within	35	11.41	.33		
Total	36	12.14			

Note.
Years: 1= ≤4 years on-the-job , 2= >4 years on-the-job
$p \geq .10$

I.21 *Performance - Education x Years x Position Univariate F-Tests for Dimension 2*

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Education	.72	1	.72	1.80	.19
Years	.30	1	.30	.75	.39
Position	.03	1	.03	.07	.79
Education x Years	.02	1	.02	.06	.81
Education x Position	.16	1	.16	.40	.53
Years x Position	.02	1	.02	.05	.83
Education x Years x Position	.00	1	.00	.00	.97
Within Groups	27.13	68	.40		
Total	28.50	75	.38		

$p \geq .10$

I.22 Performance - Education x Years x Position Univariate F-Tests for Dimension 4

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Education	.15	1	.15	.45	.50
Years	.03	1	.03	.08	.78
Position	.44	1	.44	1.31	.26
Education x Years	.71	1	.71	2.12	.15
Education x Position	.12	1	.12	.35	.56
Years x Position	.32	1	.32	.95	.33
Education x Years x Position	.32	1	.32	.95	.33
Within Groups	29.16	87	.34		
Total	31.29	94	.33		

$p \geq .10$

I.23 Performance - Education x Years x Position Univariate F-Tests for Dimension 5

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Education	.03	1	.03	.06	.81
Years	.03	1	.03	.07	.80
Position	.19	1	.19	.39	.53
Education x Years	.78	1	.78	1.59	.21
Education x Position	.49	1	.49	1.00	.32
Years x Position	.44	1	.44	.90	.35
Education x Years x Position	.05	1	.05	.10	.75
Within Groups	40.26	82	.49		
Total	42.53	89	.48		

$p \geq .10$

I.24 Performance - Education x Years x Position Univariate F-Tests for Dimension 6

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Education	.02	1	.02	.03	.87
Years	.56	1	.56	1.04	.31
Position	.41	1	.41	.76	.39
Education x Years	.09	1	.09	.16	.69
Education x Position	1.01	1	1.01	1.86	.18
Years x Position	.02	1	.02	.03	.86
Education x Years x Position	.20	1	.20	.38	.54
Within Groups	28.59	53	.54		
Total	31.14	60	.52		

$p \geq .10$

I.25 Performance - Simple Effects Analysis of Variance for Years x Dimension 3

Source of Variation	*DF*	Sum of Squares	Mean Squares	*F*	Sig. of *F*
(*Education=1*)					
Between	1	1.31	1.31	2.37	.13
Within	66	36.33	.55		
Total	67	37.64			
(*Education=2*)					
Between	1	.59	.59	1.66	.21
Within	33	11.70	.35		
Total	34	12.29			

Note.
Education: 1=Undergraduate level, 2=Graduate level
$p \geq .10$

I.26 Performance - Specialization x Years x Position Univariate F-Tests for Dimension 2

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Specialization	.18	2	.09	.23	.80
Years	.38	1	.38	.96	.33
Position	.01	1	.01	.03	.86
Specialization x Years	.37	2	.19	.48	.62
Specialization x Position	1.67	2	.83	2.13	.13
Years x Position	.05	1	.05	.13	.72
Specialization x Years x Position	.19	2	.10	.25	.78
Within Groups	25.04	64	.39		
Total	28.50	75	.38		

$p \geq .10$

I.27 Performance - Specialization x Years x Position Univariate F-Tests for Dimension 3

Source of Variation	Sum of Squares	*DF*	Mean Square	*F*	Sig. of *F*
Specialization	2.07	2	1.03	1.84	.17
Years	.68	1	.68	1.21	.27
Position	.06	1	.06	.10	.75
Specialization x Years	.08	2	.04	.07	.93
Specialization x Position	1.26	2	.63	1.13	.33
Years x Position	.03	1	.03	.05	.82
Specialization x Years x Position	.28	2	.14	.25	.78
Within Groups	52.21	93	.56		
Total	57.09	104	.55		

$p \geq .10$

I.28 Performance - Specialization x Years x Position Univariate F-Tests for Dimension 4

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Specialization	.17	2	.09	.24	.79
Years	.00	1	.00	.00	1.00
Position	.52	1	.52	1.45	.23
Specialization x Years	.20	2	.10	.29	.75
Specialization x Position	.66	2	.33	.93	.40
Years x Position	.21	1	.21	.59	.45
Specialization x Years x Position	1.36	2	.68	1.91	.15
Within Groups	29.86	84	.36		
Total	32.95	95	.35		

$p \geq .10$

I.29 Performance - Specialization x Years x Position Univariate F-Tests for Dimension 5

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Specialization	1.34	2	.61	1.29	.28
Years	.04	1	.04	.07	.79
Position	.21	1	.21	.40	.53
Specialization x Years	.60	2	.30	.58	.56
Specialization x Position	1.83	2	.92	1.76	.18
Years x Position	.52	1	.52	1.00	.32
Specialization x Years x Position	.07	2	.03	.06	.94
Within Groups	41.65	80	.52		
Total	45.91	91	.51		

$p \geq .10$

I.30 Performance - Specialization x Years x Position Univariate F-Tests for Dimension 6

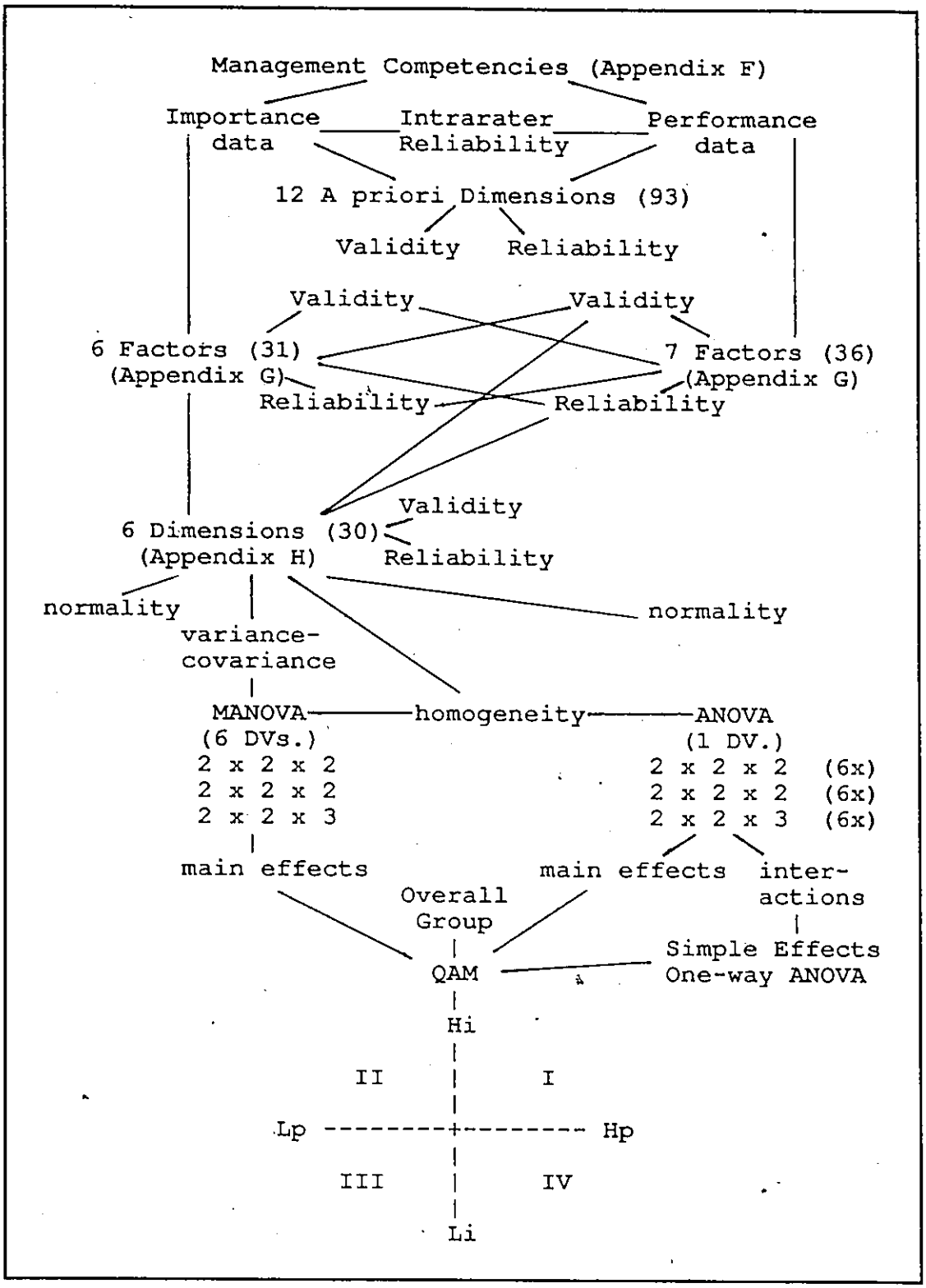
Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Specialization	.25	2	.12	.23	.80
Years	.63	1	.63	1.18	.28
Position	.42	1	.42	.78	.38
Specialization x Years	2.16	2	1.08	2.02	.14
Specialization x Position	.69	2	.34	.64	.53
Years x Position	.03	1	.03	.05	.83
Specialization x Years x Position	.15	2	.08	.14	.87
Within Groups	26.18	49	.53		
Total	31.14	60	.52		

$p \geq .10$

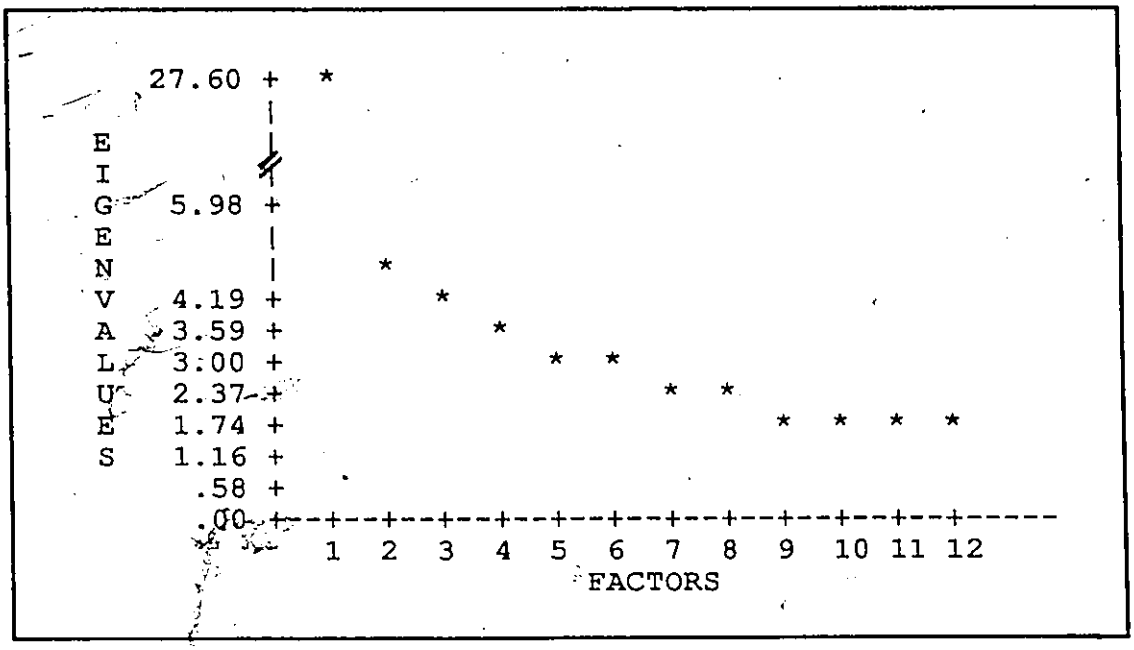
Appendix J

FIGURES

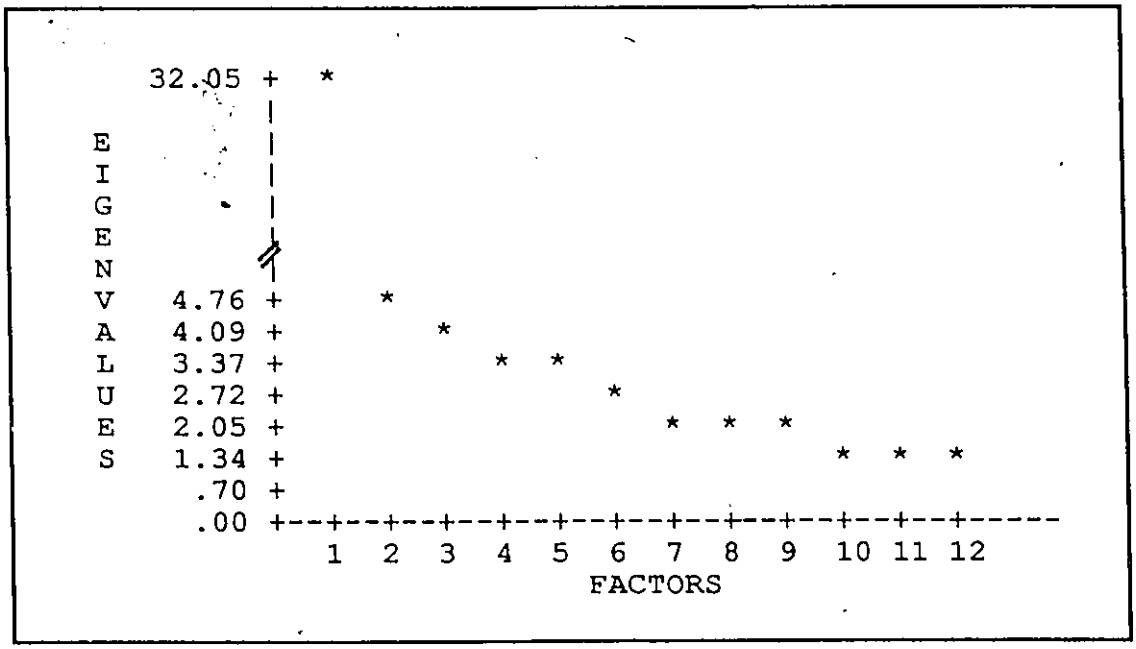
J.1 Data Analysis Overview



J.2 Importance - Scree Plot



J.3 Performance - Scree Plot



Appendix K

RAW DATA AND CODES

K.1 Data Codes

Dependent Competency Variables:

1. *Importance*
   - 0= Delegated (Recode 0=1)
   - 1= Not important
   - 2= Minimal importance
   - 3= Important
   - 4= Very important
   - 5= Essential
2. *Performance*
   - 1= Needs improvement
   - 2= Slightly knowledgeable
   - 3= Knowledgeable
   - 4= Very knowledgeable
   - 5= Expert
   - NA= No opinion; no assessment can be made

Independent Training Variables:

1. **Prior Administrative Experience (*Prior*)**
   - 1= Sport administrative experience
   - 2= Administrative experience (Recode 1=2)
   - 3= No Administrative experience
2. **Highest Level of Education (*Education*)**
   - 1= Undergraduate (college diploma)
   - 2= Undergraduate (bachelor's degree) (Recode 1=2)
   - 3= Graduate (master's/doctoral degree)
   - 4= Other
3. **Specialization ***
   - 1= Sport administration major
   - 2= Administration major
   - 5= Physical education administration major
   - 6= Recreation administration major
   - 7= Human kinetics administration major (Recode 1=2=5=6=7)
   - 3= Administration minor
   - 4= Little to No Administration

Extraneous Variables:

1. **Institution**
   - 1= College
   - 2= University
2. **Respondent Group (*Position*)**
   - 1= Administrator
   - 2= Superordinate
   - 3= Superordinate (< 1 year)
   - 4= Administrator (< 1 year)

(*continued next page*)

Data Codes (continued)

* *List of Courses for Specialization Variable:*

- sport administration
- administration of athletic events
- organizational behaviour
- educational administration
- economic theory
- business management/ procedures
- school law
- public relations
- personnel management
- administration of physical education, recreation, and/or athletics
- school finance
- marketing
- leadership theory
- administrative/ organizational theory
- legal liability
- business law
- human relations
- business finance
- accounting
- decision making
- communications
- journalism
- other (administration)

Major (> 9 courses)
Minor (4 - 9 courses)
None (0 - 3 courses)

K.2 Raw Data

Each response required 4 lines as follows:

LINE *1* COL. *1-54* = Importance Ratings (Imp.)
LINE *2* COL. *1-26* = Imp.
LINE *2* COL. *27-54* = Performance Ratings (Per.)
LINE *3* COL. *1-52* = Per.
LINE *4* COL. *1,3,5,7,9,11,13,15,17,19,21,23,25* = Imp.
LINE *4* COL. *2,4,6,8,10,12,14,16,18,20,22,24,26* = Per.
LINE *4* COL. *27-28* = Years in Present Position
LINE *4* COL. *29-30* = Years in Present Organization
LINE *4* COL. *31-32* = Years in the Field
LINE *4* COL. *33* = Prior Administrative Experience
LINE *4* COL. *34* = Level of Education
LINE *4* COL. *35* = Specialization
LINE *4* COL. *36* = Institution
LINE *4* COL. *37-39* = Code Number
LINE *4* COL. *40* = Respondent Group

(*continued next page*)

Raw Data (continued)

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Raw Data (continued)

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Raw Data (continued)

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Raw Data (continued)

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